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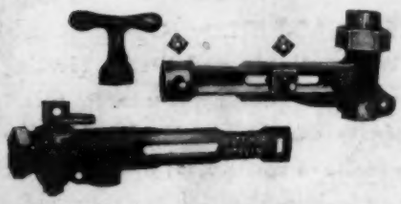
Lattimer-Stevens

Meter Connections

No. 45 Connection (Apart).

Note built-in lock wing stop-cock. Inlet and outlet members take the place of standard fittings connected by the tie in bar to protect the meter from strains.

No. 302 Connection (Apart)



Showing sturdiness in construction of parts. Adjustable to all positions. Built-in lock wing stop-cock on inlet end.

SIXTEEN years' experience in solving meter setting problems has developed a series of meter connections—Adjustable yet Rigid—a type to fit all size meters—with or without built-in stop-cock.

THE Lattimer-Stevens supporting shelf swings from the tie-in connection, completing an installation which relieves strains on the meter screws.

Write for catalog and sample connections.

The Lattimer-Stevens Company

Company Member American Gas Association

72 Yale Avenue **Columbus, Ohio**

New England Representative:
The Eastern Service Co.
Boston

New York Representative:
Mulcare Engineering Co.
100 Park Place, New York

Pacific Coast Representatives:
Will W. Barnes, Los Angeles
A. P. Bartley, San Francisco

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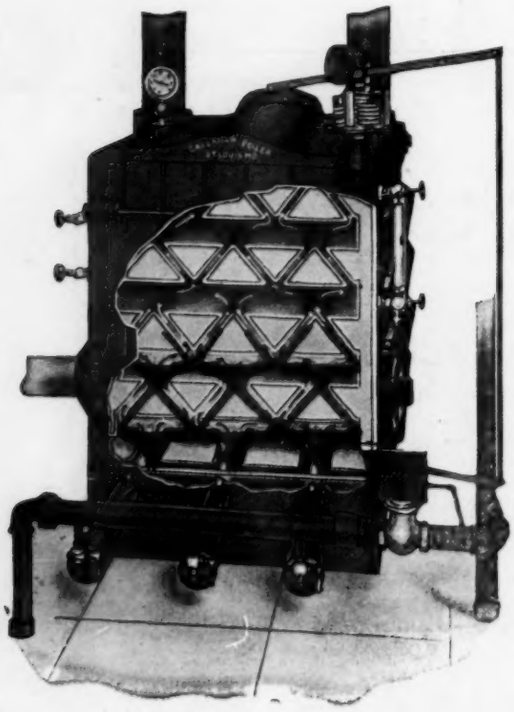
A5

Other Gas Companies Are Doing It!



Send for our booklet and terms and learn how Gallaher Gas-Fired Boilers will increase both Volume Sendout and Profit.

TO educate the masses to the convenience, cleanliness, economy, wastelessness, safety and all the other virtues of house heating by gas, will take time and patience; but if the start is not made the goal will never be reached.

Yet there are some gas companies who have approached the house-heating-by-gas problem in an earnest, systematic manner; notably, The Laclede Gas Light Co. of St. Louis, who have surmounted all of the difficulties and whose efforts have been entirely successful.

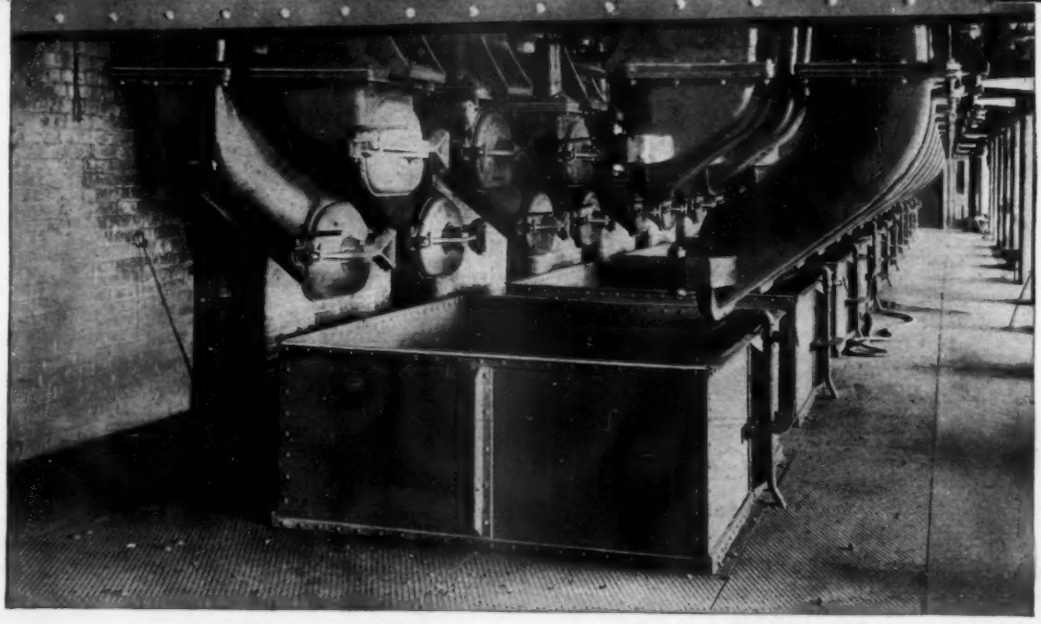
The present time is most propitious for forcibly presenting the advantages of heating by gas, on account of the unsettled conditions in the coal industry with the possible shortage of this fuel next winter, and householders are therefore in a more receptive mood for improved gas appliances, such as the Gallaher Boiler and Storage Tank Heater.

GALLAHER GAS-FIRED TUBULAR BOILERS for Hot Water, Vapor and Steam Heating when shown, lower the sales resistance to this type of house heating and make easy the introduction of gas into a new realm of usefulness; to the satisfaction of the customer and profit of the gas company.

GALLAHER BOILER CO.

Laclede Gas Building, St. Louis, Mo.

GLOVER-WEST *Vertical Retorts*



Make Your Own Comparison

Great responsibility hinges upon your choice of the right plant. We invite you to study the financial returns of Glover-West plants.

For Particulars and Estimates Write

WEST GAS IMPROVEMENT CO.
of America, Inc.
150 Nassau St. New York

American Gas Journal

SIXTY FIFTH YEAR

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Selling Gas to the Housewife

How the home service of a large gas company is run

P. D. Warren

The People's Gas Light & Coke Co., Chicago

LESS than two years ago a man said to the director of the newly installed Home Service Department of the People's Gas Light & Coke Co. of Chicago, "You can never make it go." She replied, "That is what folks said about the locomotive. And when it started they said 'it will never stop.'" Then the Home Service rooms consisted of a model kitchen, laundry, office and space for about a hundred chairs in front of the open kitchen. Today there is a beautiful big auditorium, seating 500, with a stage equipped as a most attractive modern kitchen. This is typical of the expansion in all parts of the service.

What Home Service Is

Home Service offers to every home-maker just the help she needs to make that home a better place to live in. Because the health and happiness of the family depends so much upon the food served, teaching how to cook delicious, wholesome, inexpensive food has been the biggest part of the work. Every day except Saturday, at 2 in the afternoon, free lecture demonstrations are given. As visitors arrive they are given a mimeographed sheet of the recipes to be demonstrated that day. The four recipes given are so spaced on the paper that they may be cut, pasted on a 3x5 inch card and filed with other recipes. The food which has been prepared is always served and it is interesting to hear the comments as the samples are eaten. The invariable conclusion is, "I am going home and try that."

The recipes, once tried at home, go into the file for daily use. Neighbors try them and come down to see for themselves. After a demonstration they step into the office and ask for some of the back lessons which they had to miss, or extra copies for friends. Husbands or daughters who are down town come in for the day's recipes, "when mother can't get in."

The Telephone Service

For the woman at home during any hour of the day there is the telephone service. Many are the questions which are asked: what to serve for company dinner, how to get a cream spot out of a georgette blouse, what to do with egg yolks, why does cake fail to rise. As one young bride confided over the phone, "I would be ashamed to let my neighbors know how ignorant I am about housekeeping, but I don't mind asknig you, for that is what you are there for." Many ask for special recipes or menu plans and these are mailed out to them.

Personal Advice Given

During the mornings there are also a number of visitors in the department consulting with the director or one of her assistants about matters too personal or too lengthy to be discussed over the telephone. One woman looked about to make sure she wasn't overheard and then confided to the director, "I don't know what is the matter with John. Nothing pleases him and we are just about at the end of the road. I'm sure it is not my fault." Wise in the ways of happy homes, the director asked, "What do you feed him for breakfast?" "Well, I never get up to get breakfast," and the story followed of poorly planned meals and delicatessen cooking. That woman went on her way with menus for a week and recipes to carry them out. At the end of the time she appeared with a happier face and a pleasanter story, for more suggestions and recipes.

The Touchstone to the Department

As the visitors increased, it became necessary to have a central booth on the main floor where ques-

tions about the department are answered, where recipes are given out, and where an attractive display of food is arranged to interest the passerby in the work of the department. At times baking is done at the booth and many are the questions asked about mixing and baking. Suggestions for entertaining are always in demand, as well as requests for home menus.

Window Display of Complete Kitchen

Another means of attractnig women to the department is the window display of a complete kitchen, artistic in its coloring and spotless in its equipment. During the busy noon hours, when many people are on the street, a crowd gathers in front of the window when a girl, crisp in her green and white unifom, makes pies and lifts golden brown cakes from the oven. Whether she is in the window or not, the display has the appearance of arrested activity, of a kitchen used for making the good things arranged on the wheel tray, on the cabinet, and on the low table directly in front of the window. On this table there is always displayed a recipe for one of the tempting looking foods, with a note that this and other recipes may be had at the main floor booth. Brightly lighted at night, the kitchen continues to attract attention with its colorful display.

For the woman at the window to whom Home Service is new, this is the beginning of an interest which leads her to step inside, learn of the work of the department at the central booth and go to the auditorium to hear the lecture demonstration.

Ways of Advertising the Service

To every user of gas the monthly gas bill carries an announcement of the lecture program and of any new work in the department. The Gas Gazette which accompanies the bill has one page devoted to the activities of Home Service, with the addition of two seasonable recipes.

One of the most attractive ways of advertising this food service is by means of the colored recipe cards. Pumpkin pies, savory meat loafs, birthday cakes painted by a skilled artist from the food as cooked in the department, head the text of the recipe. At the bottom is the notice that it is prepared by the Home Service Department. These cards are so attractive that they stimulate an interest in trying the recipe, and in coming to the department for others.

Once a week a food article with recipes by one of the members of the staff appears in an evening paper, together with announcements about the weekly program.

The Motor Kitchen

A novel way of distributing literature and arousing interest has been through the use of the Motor Kitchen. This completely equipped kitchen can be motored to any part of the city for use in demonstrations. The gas stove, supplied with gas from a storage tank underneath the truck floor, turns out food browned to the right degree, appetizing in odor. This has been frequently used for lecture demonstrations at settlement houses and places not otherwise equipped. It has been a good means of publicity when used in parades of various sorts throughout the city.

Putting Home Service "In the Air"

The use of the radio to broadcast a daily food talk with recipes and menus has been one of the most popular features. This service, started a year ago this December, has been in such demand that, in addition to the daily morning talk at 11:35, there is a talk on entertaining, party plans, suppers and teas, one evening a week.

Friday morning, with its menu for Sunday dinner, has been so generally followed that the grocers and butchers have come to know what kind of meat or vegetables the radio lady suggested. Monday morning talks help with the problems of left-overs. For a period of twelve weeks on Tuesday, following the plan of the lecture demonstrations, a general course

in cooking was given, with the request that all wishing to take the course reply by mail. Fifteen hundred (1,500) women registered for it, making weekly reports that they had tried the recipes. Three hundred sixty (360) women finished the entire course and came to the Home Service department for tea to receive their certificates. This was the second tea given by the department.

The first Radio Tea to which an invitation was broadcast to come and get acquainted brought 1,500 women and men to see Mrs. Peterson and the department which she directs.

Many Letters Come to the Department

The mail brings hundreds of letters from the "radio pals," who feel they have a friend to help them with any of their problems, from making over carpets and scraping wood floors to teaching them

(Continued on page 18)

Better Public Service*

Co-operation and team work are essential in obtaining goal

Herbert A. Wagner

President Consolidated Gas, Electric Light & Power Company, of Baltimore, Md.

LADIES and gentlemen of the company, my friends, as I feel you all to be. The theme suggested to me for my talk tonight is "Good Public Service."

We have talked of "Good Public Service" and advertised it for a long time until we all have formed some idea of what it means. But is our service so good in every particular that it cannot be made better? We cannot say that as yet. So for our discussion tonight I will change the theme to "Better Public Service," for that is what we should ever have in mind.

Aim of Management Is Best Service Possible

You know the aim of the management is to give the best service to the people of Baltimore that it is possible to give. But, however strong this aim may be, it cannot be accomplished without the wholehearted assistance of every one in the employ of the company. It cannot be carried through by a few of us; it cannot be done by organization or by rules, or even by improved methods. Co-operation and teamplay are important factors, but real success depends upon the individual effort of everyone in this organization. So it is the personal element in "Better Public Service" that I want to stress tonight.

If I appear to preach a little, try to believe that it is in the nature of kindly advice to what I believe to be the finest body of men and women in the city of Baltimore, and I would like to get nearer to every one of you in heart. I appreciate the loyalty with which you have always supported the management, and the good work which you have done, so I know I can count on you to help us to do still better things. But "Good Public Service" or "Better Public Service" is not a definite thing, or one that can be described in a few words or can be produced by formula. Good service goes far beyond the supplying of good gas and reliable electricity; it is really a personal thing, an attitude of mind, a habit of action with all of us who can contribute to this service.

No Employee Is Unimportant

Don't let anyone think that he is unimportant in this company, or that his work doesn't count for much. Every act, every effort of every one of you has its effect in aiding or retarding the progress of the company in perfecting its service.

Why are we all working here for the company? To make a living, you will probably say. Yes, but what are we living for? Aren't we living to progress and make our lives count for something?

To Progress: Be Useful

The surest way to progress is to be useful, and we make our lives useful by serving others. The better we serve the more our service is worth. This is why the expression "Better Public Service" should mean something very personal to each of us. Our friends and associates judge us by our service to others; our willingness to serve, our desire to help. That is the only way in which we can grow or progress or be happy.

Herbert A. Wagner

Now, opportunity is a great thing and some men have greater opportunities to serve than others and they progress faster. Our company serves more people than any other concern in Baltimore. Its work differs from the work of other industries in that it is a public service; an absolutely necessary service rendered to all the people alike. We are, each of us, a part of this great public serving organization, and in this way we have unequalled opportunity to serve as individuals. Each one of us can make his work and its quality felt by more people than those working for any other concern in Baltimore. Have you ever thought of that?

*An address d livered at the annual rally of the Baltimore Gas & Electric Association and reprinted from the Baltimore Gas & Electric News.

Work of Many Affected by Work of Gas Employees

Have you ever stopped to think, while you are working, how many, many people are affected more or less directly by the manner in which you are doing your work? Many of you come into personal contact with the people whom the company serves. When you read a meter; when you make out a bill; when you collect a bill; when you sell a lamp or other appliance; when you answer an inquiry or a request; when you make an inspection; when you run a wire or install a service; when you are working on the street; you are personally repreesnting the company and personally serving the public.

Employees Important Point of Contact With Public

Do you realize that it is almost entirely through you that the public makes its acquaintance with the company and forms its opinion of it? This means that each of you has a great personal responsibility, and also a wonderful opportunity to serve and to make your work felt.

What do you want people to think of your company? Isn't it your job to sell the company to the public—to make friends of the people? You can only make friends by giving good service in every way you know how.

Good service means unfailing courtesy and patient attention to every inquiry or request made of us, and the greatest care in the performance of every duty which may in any way affect a customer. It requires constant vigilance that no act or omission may lead to a misunderstanding of the company's desire to be just and fair and kindly to every one.

Every Business Has Its Mark

How is the company rated by the people you know, the people you meet and the people who see you at work? Sometimes, but not often, I am glad to say, we get letters or notices to the effect that some of our men are not doing good work or are loafing on the job. Who gets the blame for such inefficiency and bad service? The company, of course, because to the people, the employees represent the company.

Reputations Are Earned by Actions

What sort of a reputation are you earning for the company? Some years ago I remember reading Frank Stockton's delightful story, "Rudder Grange." Some unusual people rented a small farm, and one day the man of the house heard their watch dog, Lord Edward, barking ferociously down the lane. Upon investigating the cause of the disturbance he discovered a tramp seeking safety in an apple tree. The tramp called out to him, "Say, Mister, chain that there dorg and I'll fix things so that you won't never be bothered by no more tramps." It was a bargain. The next day the man noticed a very curious mark cut on a tree at the entrance of the lane. To the surprise of the household no more tramps came their way that summer. Some weeks afterward the man saw a tramp looking at this mark on the tree, and he bribed the hobo to tell him what it meant. He learned that he had been branded as a "mean stingy cuss with a wicked dog, and there ain't no use going there."

So every business has its mark—that those who know the signs may read. It is the mark that is given to it by its employees. If you think well of the company be sure that the mark you make for it is a good one.

And, speaking of tramps, you may remember the tramp that went to the back door on a very hot summer day and asked the old lady for food. She asked him why he wasn't working, and if he did not want some kind of work, and he replied, "I'm sorry, lady, but I belongs to the Snow Shovelers' Union.

Now, we have no Snow Shovelers' Union, and no excuse to let someone else do the job at hand. We want our customers to know that it is a mighty cold day when we are not all on the job, and that like a widely advertised article, "We work while they sleep."

The Finest Kind of Work There Is

You have proved yourselves as anxious as the management not only to have the people in Baltimore believe that our first desire is to give good service, but to have every reason to know that it is good and that they are getting even more than their money's worth. But we aim to give still better service—and that again is up to you to accomplish. If you see any way of improving things that you cannot accomplish yourself, let us know about it; we always welcome and encourage your suggestions. You are on the firing line and can best see the weak spots. It will always pay you to keep your eyes open.

If you think the management is not doing its part, let us hear from you on that. An important part of our job is to sell this company to you and to new employees, but even in this we have to work through many of you—because those of you represent the management to the newcomer. We want you to be proud to be a member of this great organization, both on account of its sincerity in dealing with the public and of its sincerity with you. We want you to realize the wonderful opportunities you have and the personal responsibility that is yours, each and every one of you.

My friends, I would have you believe, with every reason for the belief, that public service is the finest kind of work there is, and that the Gas and Electric Company of Baltimore is the best place to find it and progress in it.

Use of Standard Meters Advocated*

Importance of carrying out recommendations of meter committee in practice

Walton Forstall

Engineer, Philadelphia Gas Works

THIS spring I had the pleasure of telling your association what our committee was trying to do towards standardizing meter capacities. Since that time we have presented our first report to the A. G. A. and by adopting our recommendations it has pointed the way to our distant goal.

This was the recommendation:

Single Diaphragm Type		Double Diaphragm Type	
Case Size	Hourly Capacity	Case Size	Hourly Capacity
5	150-175		
10	250-375		
20	450		
30	600-875	11-C	1100
60	1200-1500	25-C	2500
100	1800	40-C	4000
150	3400		
200	3500	60-C	6000
250	5000		
500	7500-9000	170-C	17000

Only Standard Meters Should Be Used

It is now the duty of every loyal A. G. A. member to buy only meters which fulfill the above requirements. Any member who buys a different or "non-standard" meter is on the defensive. If he believes that his situation is a very peculiar one and justifies a departure from the standards, he should discuss his case with our committee before he feels sure of his position. For instance, if he still wants to buy a 3-light or a 5-light with a capacity below 150 cubic feet, he should understand the reasons that have led the A. G. A. to set a 5-light case as the smallest case size and 150 cubic feet as the least hourly capacity before he persists in staying out of the fold.

These two cases of "non-standard" buying are just a sample of what the meter industry has suffered from the absence of standards. There are too many fashions in indexes, for one thing. The user should appreciate that in the end he pays for every expense due to the existence of many meter patterns. It is high time that the maker tell the user of the advantage both will derive from a standard.

You will appreciate that the case sizes and hourly capacities embraced by the standard include all meters now made except only 3-lights and 5-lights with capacity less than 150 cubic feet. So far we have only standardized present practice and the real hard work of attempting to agree on one capacity for each case size and on the proper number of case sizes, lies ahead of us.

*Delivered at the mid-year meeting of the Pennsylvania Gas Association.

Present Plans

We are endeavoring through a sub-committee to combine in one case size most of the advantages of both the "A" and the "B" type. By the use of a 5 case, of a 8⅝ in. diaphragm, there is available a meter of slower than "A" speed, but with "A" capacity. As soon as our sub-committee has agreed on the details of such a meter, and it has received the approval of the main committee, the largest companies will be asked to give trial orders of several thousands in such location. After several years of such trial we ought to be ready to recommend to the A. G. A. a standard 5 case meter.

In the same way the 10 case must be studied and a trial meter adopted. As to the 20 case, there is much doubt in the minds of some of us whether that size is really needed. Each of the larger sizes will be taken in their turn, but when you remember that over 90 per cent of all meters are 5 case or smaller, you will realize that this one size is of paramount importance.

The difficulty in reaching our goal is that the meter companies are so busy supplying meters that they have little time to think of improved design. Also in the past, the user has either taken what was given him or has asked for some design of his own. Each company in your association can very much help this work of standardization by showing their meter manufacturer that they expect to live up to the new standard and are anxious to have only one capacity for each size case.

FORMATION OF COKE

The coking of coal has been considered to be dependent upon its fusibility, it being assumed that a decomposition takes place, of the order $C_2H_4=C+CH_4$, the carbon set free being deposited in the form of capillary tubes, which, netted together, cause the formation of coke. Pure carbon is not infusible, and has been observed in a fluid state in the electric arc.

Under the experimental conditions the time for coking was found to be 5 mins., including 30 secs. heating up. The process of coking was observed by suddenly cooling the crucible at different stages. A thin shell was formed after 15 secs. heating. This shell surrounded the crater containing unaltered coal, and the crater finally disappeared, leaving the complete shell formation, with a silver-grey outer covering. The mode of formation of coke in the laboratory is very different from that in practical coking. (For further details, see Chem. Weekblad, 1923, volume 20, pages 344-8.)

The Home Rule Bill and Municipal Ownership

Don Holbrook

William P. Capes, secretary of the Mayors' Conference of New York State, believes the reduction of local bills occasioned by the new home rule amendment to the New York State Constitution will give the Legislature more time to consider statewide measures and that this class of bills will gradually increase. He predicts that the cities, which do not now have the right to own and operate public utilities, will endeavor to get the right from the Legislature so that all municipalities in the state may be placed on an equal footing. Many of the smaller cities and all of the villages now have the right to own and operate electric light plants.

The conference has been trying for years to get from the Legislature a law providing for a uniform method of issuing bonds. This feature is of particular importance in financing a publicly owned utility project.

Various Cities Have Right to Own and Operate Utilities

The following cities, either by a provision in their charter or special law, have the right to own and operate municipal electric light plants:

Binghamton, Jamestown, Watertown, Oswego, Dunkirk, Batavia, North Tonawanda, Tonawanda, Port Jervis, Rome, Salamanca, Long Beach and Oneida.

Of these cities, only Long Beach, Jamestown, Salamanca and Dunkirk are taking advantage of the right. Batavia also has the right and did operate a plant for some time, and then was offered a lower rate by the Niagara Falls Power Company. It can resume operation of its own plant at any time. Seven or eight villages own and operate their own lighting plants.

The cities and villages with the right to own and operate their plants may also sell lighting to the inhabitants in addition to supplying city lighting.

The larger cities have the right to own and operate plants for municipal lighting only. The Legislature will have to act before the cities can all own and operate their plants to supply the inhabitants with lighting.

The commission of fifteen members created to prepare a home rule enabling act for the Legislature is now at work and hearings are being held in various up-state cities this week.

Standards of Practice in Utility Advertising

At a recent meeting of the Public Utilities Advertising Association an organization composed of the advertising men of the various public utility organizations and parent associations, a series of ten standards of practice were adopted. The Public Utilities Advertising Association is a department of the Associated Advertising Clubs of the World.

In adopting the standards of practice, ten rules by which all men engaged in this work will be governed, the committee forming the standards said:

"Realizing our obligation and responsibility to the public, to the seller of advertising service, the advertising agent and our own organization, we, as public utility advertisers, pledge ourselves to the observance of these standards of practice."

The men composing the committee which drew up the standards are: J. C. McQuiston, director of advertising of the Westinghoue Electric and Manufacturing Co.; F. L. Blanchard, director of advertising, H. L. Doherty Co.; George F. Oxley, director of publicity, National Electric Light Association; Labert St. Clair, director of advertising, American Electric Railway Association, and Charles W. Person, director of advertising, American Gas Association. W. L. Strandborg, Director of Advertising, Portland Railway, Light & Power Co., of Portland, Oregon, is president of the association.

The Standards of Practice.

The standards of practice are as follows:

(1) To consider the interests of the public foremost, and particularly that portion thereof which we serve;

(2) To claim no more, but if anything a little less, in our advertising than we can deliver;

(3) To refrain from statements in our advertising which, through actual misrepresentation, through ambiguity or through incompleteness, are likely to be misleading to the public, or unjust to competitors;

(4) To use every possible means, not only in our own individual advertising, but by association and cooperation, to increase the public's confidence in advertised statements;

(5) To refrain from attacking competitors in our advertising;

(6) To refrain from imposing upon the seller of advertising service unjust, unreasonable and unnecessarily irksome requirements;

(7) To furnish to publishers, when requested, technical information which will help them keep reading pages and advertising columns free from misstatements.

(Continued on page 10)

*From American Gas Association.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT YOU CAN DO IT BETTER WITH GAS

FOREWORD

Industrial Gas Lessons has for its primary object the discussion and explanation of principles of heat and the application of these principles to practical operations in the specific case of gas as the fuel. Gas is a fuel, and the function of any fuel is to produce heat. But before the production of heat by burning gas and the utilization of the heat to useful purpose at satisfactory efficiency can be understood, it is necessary that the essential laws and basic principles of the science of heat be thoroughly studied and discussed.

Accordingly, the first consideration is to lay down these principles, study their properties and characteristics, so that their application to industrial heating operations will be clearly understood. The first part of Industrial Gas Lessons will deal with fundamental laws and principles of heat. After they have been developed the application of gas for various industrial purposes will be studied.

LESSON No. 1
Part A
The laws and principles of heat

The Forms of Energy

HEAT is a form of energy. An important property of energy is the power of doing work. Thus, for example, a body of water which is falling from a height is possessed of the power of doing work, as the water may be made to drop into buckets, arranged around a wheel, with resulting revolution of the latter and the driving of electric generators connected to the same shaft. The electric current that is generated in this manner is also a form of energy, being known as electrical energy, while the energy in the falling water is called mechanical energy. One form of energy can be converted into the other, for the current may be used in a motor to develop mechanical energy, completing the cycle. Each form of energy may be manifested in different ways.

During the transformation of electrical energy into mechanical, or vice versa, heat is generated through friction, which represents a loss of energy as far as useful work is concerned. This implies the conversion of mechanical or electrical energy into heat energy. While heat energy can be developed in this manner, this is not the way heat is generated on an industrial and practical scale.

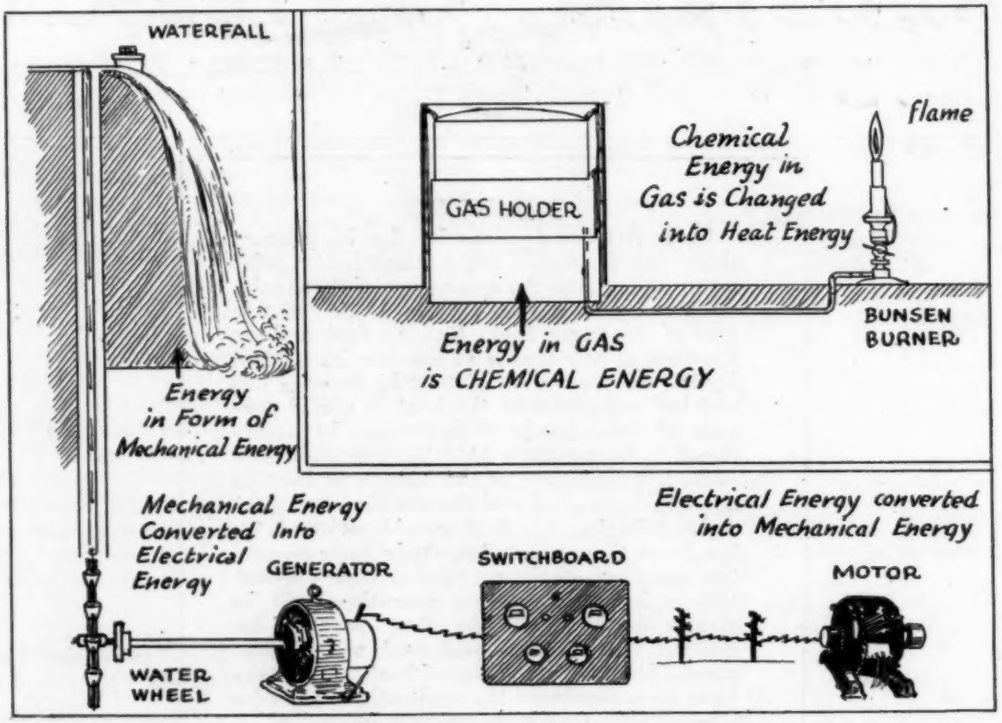
There is another form of energy that concerns us, namely, chemical energy. Only certain substances possess this kind of energy, namely, those that can burn. In burning they generate heat. This is the manner in which heat is produced for all general purposes. It must also be mentioned in passing that electrical energy can be transformed directly into heat by being passed through a conductor which has a high resistance, such as ni-chrome wire.

Heat and Temperature

While there are different forms of energy, there are also different manifestations of each kind of energy. Thus electrical energy may be direct or alternating. But, as far as heat is concerned, there is only one form of this energy. It makes no difference whether the heat is developed by burning gas or coal, or whether it is generated as "by-product energy" in transporting mechanical power, as in the rotation of a shaft in a bearing. In all cases there is but one kind of heat and in every instance the presence of heat is detected by an increase in the amount of this form of energy in the heated body. In other words a substance is known to contain greater heat by the fact that its temperature is greater than other objects.

Heat Detected by Temperature Change

Heat is therefore a form of energy whose greater or lesser manifestation is detected by the tempera-



ture. Temperature must be understood to be an effect of heat and is the common way in which it is possible to tell whether one body is hotter or colder than another. If the two bodies possess the same temperature, there is no sensible indication that either body is hotter or colder than the other. Thus, the temperature of the body is normally around 98.5 degrees F. If, then, water of this temperature is brought in contact with the body, it feels neither hotter nor colder than the body itself.

Heat and Motion of Particles

In a strict scientific sense, heat implies a certain degree of motion of the particles of a substance, the infinitesimally small physical units, called molecules. The greater this motion, the greater the heat content in the body. A solid substance, possessing little motion of its constituent particles, has little heat content. When its temperature is raised, and heat is absorbed by the solid, the motion of these particles is increased, until, if enough heat is supplied, the body loses its solid state and is changed into a liquid. Then, if more heat is added, the liquid will eventually be converted into a vapor in which form the particles of matter possess the greatest motion.

The relation between the heat content of a body and the motion of the molecules or smallest units into which the substance can be physically divided, is based on the axiom that all substances contain a certain amount of heat. This is understandable, for when we chill the hands by exposure to cold and touch a piece of wool it feels warm to the touch. In considering heat it is natural to use the body as a standard of comparison. What is colder than the hand is commonly considered as possessing no heat. But this is inaccurate. That particular body simply contains less heat than the hand, but itself possesses a certain proportion of heat.

Addition of heat causes greater movement of the molecules of a solid, and if sufficient heat is applied, their adherence to each other manifested in the solid condition of the substance is destroyed, and the solid meets, becoming a liquid. The same phenomenon takes place in the change from liquid to gaseous condition. This is called the Kinetic theory of heat.

(Next week's lesson will deal with changes effected by heat.)

GAS OF NATION'S HOMES FOR HALF OF MONEY SPENT ON ITS TOBACCO SMOKE

The people of the United States spend nearly twice as much in a year for cigars and cigarettes as they do for the manufactured gas service that cooks half of all the food consumed, heats their hot water or their entire houses, and is the fuel for nearly 1,200 industrial operations.

The exact figures, taken from the United States Census Reports of 1921, show $806,748,865 spent in that year for cigars and cigarettes, and $411,195,503 for manufactured gas.

During the same year the American people spent:
$7,849,600,000 for food.
$2,710,000,000 for clothing.
$539,687,000 for furniture.
$1,999,914,000 for printed literature.
$1,671,387,000 for automobiles.
$496,123,000 for tires and tubes.
$527,259,000 for candy and ice cream.
$479,783,000 for butter.
$466,600,000 for sugar.

In 1921 the total consumption of manufactured gas was 326 billion cubic feet.

As The Journal Views It

JOURNAL IN FLAT ENVELOPES

Commencing with the present issue, the American Gas Journal will be mailed in flat envelopes. This will bring the Journal to its readers in an unfolded state, thus avoiding the annoyance that is generally incurred in other forms of mailing. This innovation will bring the Journal to its readers in the best possible condtion.

A REAL SERVICE

In another part of the present issue of the American Gas Journal there is printed an article describing the manner in which the service department of a large Western gas company is operated. Underlying the workings of this important division of the organization of this gas company is the desire to give real service to its customers.

What does service mean? What does the customer expect of the gas company, and what does he get? Can the gas company do too much in serving its customers, or is the consumer totally indifferent to the benefits that he can and does derive from the efforts of the gas company in his behalf? Is the average consumer so imbued with enmity towards the gas company that, no matter how much service is given him, he remains adamant in his unfriendly attitude?

These are questions that command consideration, and under certain conditions definite, conclusive answers cannot be made to them. It depends upon the community to a certain extent. It depends upon what conditions have existed in the past that have caused a development of deep, ingrained prejudice against gas companies and public utilities as a whole. But however difficult the conditions are, however adverse the general feeling of the public toward the gas utility, it is up to the gas company to show its customers that it is giving them real service. It must prove to them without a shadow of doubt that they are directly benefited by the efforts of the gas company to make life more livable through the agency of gas as a fuel.

By reading the aforementioned article it will be clearly seen that this particular gas company does give real service to its consumers, service that in the opinion of gas men may far exceed what the average gas company is called upon and actually expected to furnish the public. It may appear to some that too much is being done and perhaps too little being gained in return.

But when it is recalled that in this particular city, where this particular gas company operates, conditions were, not so many years ago, perhaps as bad, if not worse, than anywhere in the entire United States, as far as public utilities were concerned, the advance that has been made in the development of real good will on the part of the public toward the gas company, is really a most remarkable attainment. It just goes to show what can be done when a real effort is made.

It illustrates the fundamental fact that, after all, the gas customer is a human being, just as the gas man, and that when he is appealed to on grounds of justice, when he is helped to live under better conditions, when he is indubitably convinced that the gas company is really imbued with a friendly, helpful spirit toward him and is ready to assist him in different ways, he cannot continue to bear ill will toward the enterprise that is exerting every effort to his advantage.

There is a deep lesson to be gathered from the results obtained as described in this article. There can be no doubt that the customers of that gas company are satisfied that they are getting their money's worth when they pay their gas bills. There can be no reason why good will should not exist in this community towards the gas utility. The people of that community know the value of their gas company. They know the good work it is doing for them. It is brought home to them in many ways, directly connected with their every-day lives. They are getting to look upon the gas utility as a real public institution, existing essentially for their peculiar benefit. They have learned that the gas company maintains a special department exclusively to serve them, to answer their questions, to help them in solv-

Do the people appreciate this? Does it pay? ing home problems, not only in connection with gas and gas appliances, but in other co-related fields.

Ask the gas company! The results are there for all to see. The gas company has gone out of its way to please the public. What has been achieved is a clear proof that this is good policy.

STANDARDS OF PRACTICE IN UTILITY ADVERTISING

(Continued from page 6)

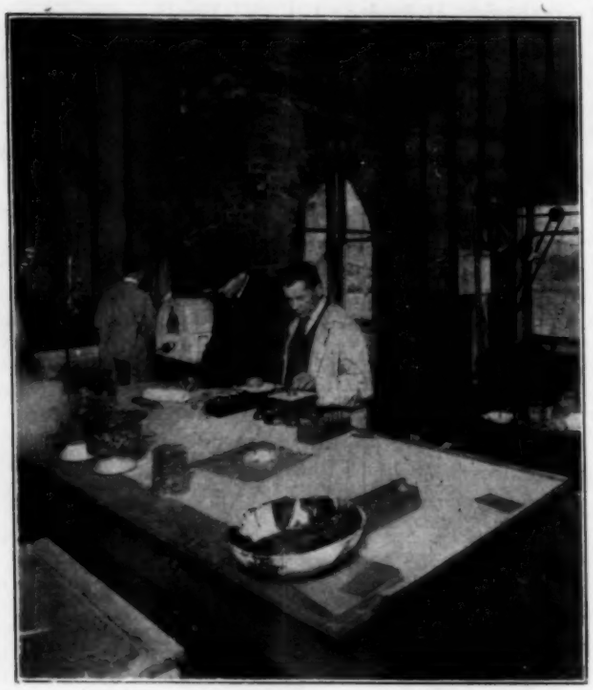
(8) To refrain from and discourage deceptive or coercive methods in securing free advertising, and to do everything possible to aid the publisher to keep his columns free and independent;

(9) To require standards for ourselves equal to those we set for others;

(10) To stand unquivocally for "Truth in Advertising."

GAS USED EXTENSIVELY IN EXPERIMENTAL LABORATORY OF PARAFFINE COMPANIES, INC.

The Paraffine Companies, Inc., maintain a very extensive experimental laboratory at their Emeryville, California, plant, this being the most convenient location because of gas, steam, compressed air and electricity and other facilities for laboratory



work. The work of this department is to find improved methods of manufacture, especially through the use of new materials, and to develop new products.

One of the interesting features in connection with the laboratory is the laboratory hood which has a vestibule effect which closes off drafts from the main laboratory room and prevents smoke from finding egress into the room. This is piped with gas, compressed air, steam, etc., and is shown at the left in the accompanying photo and is used in doing general laboratory work where obnoxious vapors are produced.

Recently large size tests were made on the combustibility of roofing and during these tests comparatively large volume of flame was produced in the hood, which was taken care of by the fireproof construction and the chimney.

On the wall of the laboratory hood there is a muffle and gas crucible furnace, which is used for burning pigments for paint manufacture.

SOFT COAL AS A WATER GAS FUEL

The issuance of Technical Paper 274, "Efficiencies in the Use of Bituminous Coking Coal as Water-Gas Generator Fuel," is announced by the Department of the Interior, through the Bureau of Mines.

Central District bituminous coals have been used to some extent during the past few years in Illinois and the surrounding states as water-gas generator fuel. The results obtained were encouraging enough to warrant further study of prevailing conditions and their causes, with the object of determining what changes in the construction of a water-gas set might be made to permit greater economies in the use of bituminous coal as generator fuel. The desirability of making as few changes as possible and of using present equipment as far as possible is recognized and has been kept in mind during the course of this study. High prices of oil and of coke and the tendency toward still higher prices increase the advisability of giving due consideration to this subject.

This paper is one of a series of publications dealing with an investigation relating to the manufacture of water gas. This investigation was conducted under a co-operative agreement between the Bureau of Mines, the State Geological Survey Division of the State of Illinois and the Engineering Experiment Station of the University of Illinois.

The results of the investigation indicate that at the present time, with the prevailing high price of coke, water gas can unquestionably be made from bituminous coal more cheaply than from coke. As prices of coal and coke advance, with an increasing margin of difference between them, the economy that can be realized from the use of coal as generator fuel increases.

When coal is substituted for coke and the same methods of operating used as with coke, there is an appreciable waste of fuel, which can be eliminated. The amount of this waste per thousand feet of gas made will increase as the standard of gas is lowered. The present tendency is toward a lower standard for city gas.

One method of eliminating waste—the use of a waste-heat boiler with combustion chamber—is suggested and discussed in this paper.

Technical Paper 274, by W. W. Odell, fuel engineer, may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

Catechism of Central Station Gas Engineering in the United States

Announcement

In the year 1909, the Trustees' Gas Educational Fund published a book entitled "Catechism of Central Station Gas Engineering." This book was copyrighted in the name of the Trustees' Gas Educational Fund, and was pronounced to be the best volume on American gas practice ever issued. The permanent trustees of the Trustees' Gas Educational Fund are Dr. Walton Clark, Dr. Alexander C. Humphreys, Mr. W. F. Douthirt. Mr. Alfred E. Forstall is secretary.

During the past two years, the American Gas Journal has had a large number of requests for copies of this Cathechism, but it has been out of print for several years.

The requests for this book have been so frequent during the last few months that the American Gas Journal decided to reprint the Catechism in instalments in its weekly issues. With this in view, it consulted the members of the Trustees' Gas Educational Fund, and received their permission to reprint the Catechism. The first installment appears in this, the first issue in January, 1924.

This reprint will be an exact reproduction of the material as originally written without alterations or changes of any kind in the wording or phraseology, and will not be published, so far as the American Gas Journal is concerned, in any other form except in weekly instalments as outlined above.

The American Gas Journal also consulted the officials of the American Gas Association, and they have expressed themselves as entirely in sympathy with the need of disseminating to the industry information such as is contained in the "Catechism of Central Station Gas Engineering in the United States."

Installment No. 1

Section 1 General Definitions

Kinds of Gas

1. Illuminating gas may, generally speaking, be divided into three classes, each class bearing the name of the material, or one of the materials, from which it is made. Give the name of each class, the materials from which each is made, and the useful products other than gas resulting from the process.

Ans. "Generally speaking, illuminating gas may be divided into the following three classes:—Coal gas comes first, with by-products of coke, tar and ammonia (gas liquor). It is made by the dry distillation of bituminous coal.

"Water gas, or more properly carburetted water gas, comes next with tar as a by-product. It is made by decomposing steam by contact with incandescent coal or coke and enriching it with oil or more properly speaking with oil gas.

"Then comes oil gas. This is made by the distillation of oil and has tar as a by-product."

Composition of Various Manufactured Gas

2. What is coal gas? What is water gas? What is carburetted water gas? What is oil gas? What is the average composition of each kind of gas?

Ans. Coal gas is the gas resulting from the dry distillation of coal. Water gas is the gas produced when steam is decomposed by contact and union with carbon at a high temperature. It is a non-luminous gas. Carburetted water gas is the gas produced by adding to and mixing with water gas a certain amount of oil gas, the mixture possessing an illuminating value dependent upon the proportions in which the water gas and oil gas are mixed. Oil gas is the gas resulting from the destructive distillation of oil (liquid hydrocarbons).

The average composition of each kind of gas is as follows, coal gas and carburetted water gas being taken after purification with iron sponge or mass:

	Coal Gas	Water Gas	Carburetted Water Gas
Carbon Dioxide CO_2	1.60%	6.3%	2.7%
Oxygen O_2	0.39%	0.5%	0.7%
Heavy Hydrocarbons	4.25%	——	12.8%
Carbon Monoxide CO	8.04%	33.6%	30.7%
Hydrogen, H_2	47.04%	50.2%	32.4%
Marsh Gas, CH_4	36.02%	2.7%	15.9%
Higher Paraffins, C_nH_{2n+2}	——	——	2.4%
Benzene Vapor, C_6H_6	0.50%	——	0.6%
Nitrogen, N_2	2.16%	6.7%	3.8%
	100.00%	100.0%	100.0%

The composition of oil gas varies very much with the oil used and the temperature at which it is gasified. Two analyses are given below, No. 1 being that of gas made from Scotch shale oil distilled at a comparatively low temperature and No. 2 that of gas made at a high temperature.

	No. 1	No. 2
Hydrogen, H_2	16.85%	12.44%
Unsaturated Hydrocarbons	44.83%	35.65%
Saturated Hydrocarbons		
Ethane, C_2H_6	17.30%	
Marsh Gas, CH_4	19.00%	45.37%
Carbon Dioxide, CO_2	0.63%	0.74%
Oxygen, O_2	0.24%	2.00%
Nitrogen, N_2	1.15%	3.20%
Carbon Monoxide, CO	——	.60%
	100.00%	100.00%

Parts of Apparatus Used for Coal Gas Making

3. Give the name of each part of the apparatus used in the manufacture and distribution of coal gas, beginning at the retort and ending at the consumer's burner.

Ans. "Retort, stand pipe, bridge pipe, dip pipe, hydraulic main, foul main, hot scrubber, exhauster, condenser, tower scrubber, rotary scrubber, center seal, purifiers, station meter, holder, street main governor, street mains, service pipe, meter connections, consumer's meter, house pipe, fixture and burner."

Functions of Apparatus

4. Name the principal pieces of apparatus necessary in a coal gas works, and state briefly the function of each

Ans. The principal pieces of apparatus necessary in a coal gas works are: retorts, stand, bridge and dip pipes, hydraulic main, tar extractor or hot scrubber, exhauster, condensers, washers or scrubbers, purifiers, station-meter and holders.

The retorts are the closed, heated vessels in which the coal is distilled; the stand, bridge and dip pipes carry the gas from the retorts to the hydraulic main, the liquor in which forms a self-acting seal preventing the return of the gas to the retorts; the tar extractor removes the heavy tar from the gas while it is still hot; the exhauster relieves the retorts from the pressure thrown by the weight of the holder and the resistance met with by the gas in passing through the various pieces of apparatus between retorts and holder; the condensers gradually cool the gas to the proper temperature (about 60 deg. F.); the washers and scrubbers remove the ammonia and part of the sulphuretted hydrogen and carbon dioxide; the purifiers remove the remainder of the sulphuretted hydrogen, some of the other sulphur compounds, and, if lime is used, the carbon dioxide; the station-meter measures the gas as it is made, thus showing the results that are being obtained; and the holders enable the rate of production to be kept constant by storing the excess gas produced during the time of minimum demand to send it out during the time of maximum demand.

Apparatus in Coal Gas Plant Named in Order

5. Name, in what you regard their proper order, the parts of a coal gas plant, from the hydraulic main to the purifiers, and give your reasons for so arranging them.

Ans. 1st. Hydraulic main. 2nd. Hot scrubber and tar extractor; because it is important that the gas pass through this apparatus at the temperature at which it leaves the hydraulic main, in order that the tar may be removed before it has cooled off, and, therefore, before it has gained any additional ability to absorb illuminants from the gas. 3rd. Exhauster; because it is impotrant to have as few parts as possible of the apparatus under vacuum. As ordinarily run, all the apparatus between the hydraulic main and the exhauster contains gas at a partial vacuum, while the apparatus beyond the exhauster is under pressure. 4th. Condenser; because it is important to cool the gas before it comes in contact with the water which is to absorb the ammonia. The cooler the water and gas the more ammonia will the water absorb per gallon. 5th. Washer and scrubber; because the better purification results are obtained in the purifying boxes, and a greater yield of ammonia in marketable form, that is, in liquor, if the washer and scrubber precede the purifiers. 6th. Purifiers; because when the gas has been through the apparatus referred to above it is in condition to enter the boxes and give up its sulphur impurities and carbonic acid to the purifying material, if this is lime; or to give up its sulphur impurities only, if the purifying material is oxide of iron.

Apparatus Used in Water Gas Manufacture

6. Give the name of each part of the apparatus used in the manufacture and distribution of water gas, beginning at the generator and ending at the consumer's burner.

Ans. "Generating apparatus, wash box, scrubber, condenser, relief holder, exhauster, center seal, purifiers, station meter, storage holder, street main govenor, steet mains, service pipe, meter connections, consumer's meter, house pipe, fixture and burner."

Function of Apparatus

7. Name the principal pieces of apparatus necessary in a carburetted water gas works, and state briefly the function of each.

Ans. The principal pieces of apparatus necessary in a carburetted water gas works are: the generator, caburetter, superheater, wash-box, scrubbers, condensers, relief holder, exhauster, purifiers, station-mete and storage holder.

The generator is the vessel in which water gas (blue gas) is produced by the action of incandescent carbon upon steam; the carburetter is the vessel in which the oil is vaporized in the presence of the water gas produced in the generator; the superheater is the vessel in which is completed the gasification of the oil begun in the carburetter, with the formation of a fixed oil gas which is mixed with the water gas; the wash-box answers the same purpose as the hydraulic main in a coal gas plant, forming an automatic seal preventing the return of gas to the generating apparatus; the scrubber is a tar extractor and also acts in connection with the condensers in cooling the gas; the relief holder compensates for the intermittent action of the generating apparatus and permits a steady flow of gas through the pieces of apparatus following it; the exhauster draws the gas from the relief holder and forces it through the purifiers and station-meter into the storage holder, the functions of these pieces of apparatus being the same as those of the same parts of a coal gas plant.

Action of Water Seal in Hydraulic Main

8. What is the action of the water seal as applied in the hydraulic main of a coal gas works and the washbox of a water gas works?

Ans. The purpose of the water seal as applied in the hydraulic main of a coal gas works and the washbox of a water gas works, is to permit the free passage of the gas from the generating apparatus and to prevent its return.

This "check valve" action is due to the large difference between the area of water in the washbox and that in the dip pipe. If the dip pipe has an internal diameter of one foot and that of the washbox is five feet, the area of the water in the washbox is approximately twenty-five times the area of the water in the dip pipe.

If the dip pipe dips two inches in the water in the washbox, a pressure only a trifle over two inches higher than the pressure in the washbox is all that is necessary to force gas through it into the washbox. But before any gas can pass back from the washbox into the dip pipe, all the water in the washbox above the bottom edge of the dip pipe must be forced up into the pipe. As the area of the washbox is twenty-five times the area of the dip pipe, the water in the box will fill the dip pipe $25 \times 2 = 50$ inches high before gas can pass. The above figures approximate those obtaining in actual practice. The coal gas hydraulic main operates on the same principle.

By-Products in Coal Gas Manufacture

9. Name the useful by-products or residuals produced in addition to the gas in the manufacture of coal gas. In the manufacture of carburetted water gas.

Ans. The useful by-products or residuals produced in the manufacture of coal gas are: Coke, retort carbon, tar, ammoniacal liquor, spent oxide and spent lime.

When naphtha is used in the manufacture of carburetted water gas the only residual is a small quantity of thin tar, which is of no value except to be burned under the boilers. When crude oil or gas oil is used, however, a good tar, which in many places commands a ready sale, is formed in larger quantities.

General Definitions

10. What is a struck bushel? What is a heaped bushel? What is an American gallon? What is an Imperial (English) gallon? Give your answers in cubic inches and cubic feet.

Ans. The American "struck" bushel is the capacity of a cylindrical vessel having inside measurements of 18½ in. diameter and 8 in. high = 2,150.42 cubic inches = 1.2444 cubic feet. A "heaped" bushel is such a cylinder surmounted by a cone not more than 6 in. high, and having as a base the diameter of the outside of the containing vessel, this vessel being 19½ in. in outside diameter. It will be seen that the diameter of the cone which forms the "heap" is 1 in. greater than the diameter of the interior of the vessel. This is because the "heap" is supposed to extend to the outside of the vessel used for measuring a bushel. The "heaped" bushel is, therefore, 2.747.7 cubic inches = 1.5901 cubic feet. This is the capacity of a cylinder 18½ in. diameter and 8 in. high, with a cone 19½ in. diameter and 6 in. high. The American Gas Light Association has adopted this bushel, using the "heaped" measure for coke and the "struck" for lime. The "struck" 'bushel is also used for measuring iron oxide.

An American gallon contains 231 cubic inches, and equals in volume 8.33888 pounds of water at 39.1 deg. F., or maximum density, and 30 in. barometric pressure. It equals 0.1336 cubic feet.

An Imperial (English) gallon contains 277.274 cubic inches and equals in volume 10 pounds of water at a temperature of 62 deg. F. and 30 in. barometric pressure. It equals 0.1604 cubic feet. It therefore equals 1.2 American gallons, and this fact should be borne in mind when reading articles published in the English Gas Journals.

Section II—Manufacturing Materials

Part 1—Bituminus Coal

Properties of a Coal Gas Coal

11. What are the properties that must be possessed by a coal to fit it for being used for the manu facture of coal gas?

Ans. The most valuable coals for use in the man-

ufacture of coal gas are those which contain a small percentage of ash and sulphur, a comparatively large percentage of volatile matter of good illuminating value, and which possess coking qualities that permit the production of good salable coke amounting to from 55 per cent to 65 per cent of the original weight of the coal.

A good Pittsburgh coal, which may be taken as the standard gas coal of the United States, will show the following analysis by weight:

Volatile Matter	33% to 35%
Fixed Carbon	60% to 55%
Ash	6% to 4%
Sulphur	0.4% to 0.6%

Under proper conditions an increase in any direction may compensate for a proportionate decrease in others. Thus, in cannel coals a large yield of rich gas balances a small production of poor coke, while in some bituminous coals an extra amount of sulphur is offset by an increased yield of gas or a harder, better coke. Comparative cheapness of price may also turn the scale in favor of an otherwise inferior local coal. But, under ordinary conditions, a coal fulfilling the requirements given above is the best for general use in coal gas manufacture.

Principal Coal Gas Fields in U. S.

12. Name the principal gas coal fields of the United States and Canada, and give the general characteristics of the coal from each field.

Ans. The principal gas coal fields of the United States are located in the Appalachian coal field, which stretches along the Appalachian mountain range from New York to Alabama, but gas coal is also found in each of the other great coal fields, viz.: the Middle in Illinois, Indiana and western Kentucky, the Western in Missouri, Iowa, Nebraska, Kansas, Arkansas and Oklahoma and the fields in the far West, the limits of which have not yet been clearly defined nor their resources fully developed.

Among the gas coal districts of the Appalachian field the Pittsburgh district, which lies immediately east and south of Pittsburgh on the Allegheny, Monongahela and Youghiogheny rivers is prominent. The coal from this district is comparatively hard and dense, so that it can be transported without excessive breakage, and yields a good amount of gas of good quality and a clean hard coke. The percentage of sulphur contained in it is small, being usually well under 1 per cent. A fair gas coal is also found in Jefferson and Beaver counties, Pennsylvania, but this coal is not quite as good as that from the main body of the Pittsburgh field.

Another important district is the West Virginia district, located in the northern part of West Virginia along the banks of the Monongahela River. The coal in this district is very similar to that obtained from the Pittsburgh district, but is less able to stand handling without disintegrating and is apt to contain more sulphur, although some samples show very well in this respect.

The Kanawha district, also in West Virginia, extends back for about 30 miles on each side of that portion of the Kanawha River between Kanawha Falls and Charleston. The coal produced here differs only slightly from the coals mentioned above, except in being apt to contain more sulphur than is found even in the coal mined in the West Virginia district, the percentage running up as high as 1½ per cent in some samples, although as low as 0.6 per cent in others. Cannel coal is also found in paying quantities in this district.

Kentucky possesses a little gas coal, but hardly enough to be taken into consideration if it were not for its large deposits of rich cannel coals. The best known of these is the Breckenridge, which, besides giving off a large amount of rich volatile matter, yields also a fairly good coke which can be mixed to a proportion of 10 per cent with the coke from ordinary gas coal without depreciating the latter.

In Tennessee good gas coal is found in Scott and Anderson counties, while in Campbell county an excellent cannel coal is mined which is similar to the Breckenridge and is known as Jellico cannel. The gas coal is a clean hard coal fully equal in all respects to that obtained from the Pittsburgh district.

In Alabama there are three coal fields, the Cahaba, the Coosa and the Warrior, in each of which some coal is found which can be used as gas coal, but the best coal for this purpose comes from the Corona seam in Walker county. This coal is clean and hard enough to bear handling well.

Although Ohio, Indiana and Illinois produce coal that is used locally for gas making, they cannot be considered as gas coal districts, since the coal is only used for this purpose when the gas works are practically over the mines, and Pennsylvania coal is in demand throughout these states for use in preference to the local coal.

In Kansas the Cherokee field produces a gas coal that is good in every respect except that of the amount of sulphur contained in it, and this runs from 2½ to 5 per cent and even as high as 8 per cent in some samples.

The Choctaw country in Oklahoma yields a coal which is clean and hard, stands handling and produces a good coke. It closely resembles the Pennsylvania coals, although it contains more sulphur and ash than the latter, the percentage of sulphur being a little over 1 per cent.

The Trinidad field in Colorado also furnishes a clean bright coal that is low in sulphur and is said to give a good yield of good quality gas and from 60 per cent to 70 per cent of compact coke.

On the Pacific coast the South Prairie and Roslyn mines in Washington give a coal from which a fair amount of fairly good quality gas can be obtained and which is low in sulphur, but produces a soft, friable and comparatively poor coke.

The principal gas coal fields in Canada lie on Glace Bay and Cow Bay in Cape Breton. These provincial coals were formerly used quite extensively by gas works situated on the Atlantic coast of the United States. They yield a good amount of gas of a quality better than average, but they disintegrate easily, contain a fairly large amount of sulphur and are very susceptible to spontaneous combustion. At the present time their use has been practically abandoned in the gas works of the United States.

(Second instalment next week)

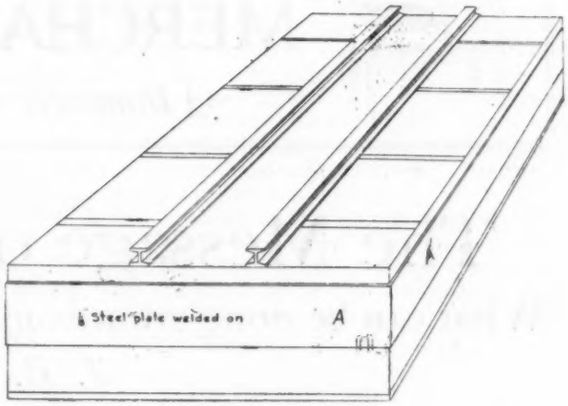
GAS WRINKLES

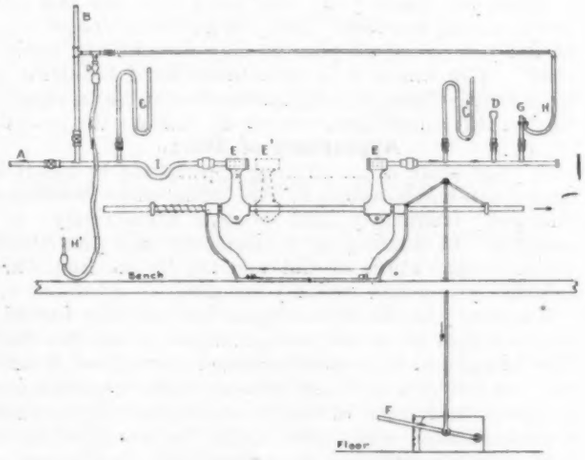
REGULATOR TESTER

By Thomas E. Boyd, Denver, Col.

This device was designed for testing regulators and is so made that it may be used for all usual sizes of regulators.

The regulator is placed between the fixed and movable supports EE and clamped tight by the lever F. The faces of EE are made of soft rubber so that connections are gas tight. The pressure in the gas line is measured by gauge "C"; the pressure behind the regulator is measured by gauge C'. The movable support is provided with a flexible connection I to the gas line B. D is an opening controlled by a valve in which different size orifices may be inserted in order to observe the effect of different rates of flow. G is a small light and H is a pilot for G. H' is a torch





used in testing the regulator for leaks and A is an air line which may be used in case the gas pressure is not available.

While the regulator is in place it is held rigid and any adjustments necessary may be made.

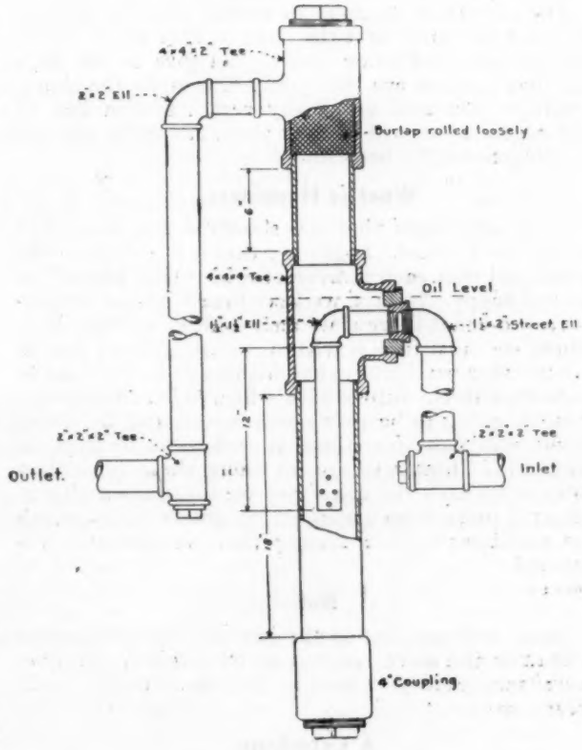
REPAIRING STEEL PURIFIER BOX COVERS

By C. F. Morris, Denver, Col.

Sketch shows the method employed in repairing steel covers on purifier boxes when they have become eaten through at the water line.

A strip of ⅛ inch steel plate is welded over the defective area with an acetylene torch.

The width of the strip A is sufficient to cover the defective area.



Oil Dust Remover for High Pressure Gas
W. Volk, San Diego, Calif.

GAS MERCHANDISING

Domestic – Industrial

The Message of the New Year

What can be done towards making the year a successful one

J. B. Dillon

ALREADY you have heard the statement: "I wish you a happy New Year!" and you are satisfied that the speaker means all of it. You also reflect that some of the same folks spoke the same words last year, but some of you must admit that it was not a happy year, because your business was not what it should have been.

The first thing to do is to realize that the days of 1923 are no more; that the days of 1924 are to come, and the only reflection you should give to the days that have passed are that you will remedy the shortcomings, you now so vividly recall, and in lieu of any neglect, you will be ever alert, energetic and unyielding toward a betterment.

What Is Happiness?

It is only right that we should define happiness before we proceed. Sages say that it is a state of the mind, and that each individual must make himself or herself happy. In fact, we have been told—and rightfully, too—that if we start on a journey seeking happiness we must take it with us or we will not find it.

Now that we know what happiness is, it is up to us to look to the future with a firm belief that everything is going to be very much better, and, believing it, we will fight for it and it will come to pass so. Surely it is better to reason along these lines than to cry: "What's the use?" yet we most assuredly do act as if there is no use of trying unless we approach the problems with a feeling that we can and will succeed.

But—

Many will say that in the past we did all of what is written and more, too, but we have failed. Are you quite sure that you have? Let us catechise ourselves.

A Catechism

When we approached our place of business daily in a happy mien, did we rest content, thinking that everybody else felt as cheerful as we did and that they would be glad to buy from such a cheerful dealer, or did we advertise our wares, meet customers personally, and handle good goods?

Yes, but it all fell flat.

Then, you know your own town best, are you not in the wrong location? Did you advertise frequently, or did you spend all your money for one big explosion? You know it is sometimes hard to locate a blast unless there is smoke attending it, but a repetition of the "blast" and everybody follows the crowd.

Appearance of Store

Is your store of an alluring appearance or has it a dingy run-down aspect? Are your show windows changed frequently and always attractively arranged? In writing advertisements, did you write plain, homey stuff, or did you try to see how "hifalutin" you could make your ads?

To give you the best suggestion possible for advertisements let us call your attention to the fact that Abe Lincoln always used common words, but it was the construction of those sentences that counted for so much, and some of our best advertisers say that if Abe Lincoln were alive today he would make a half million yearly just by writing advertisements.

Do you conduct your store with a personality?

That is, do you treat the customers as you yourself would wish to be treated? Is your sales-talk convincing and do you really understand the merits of the goods you are selling?

Unless strict attention is paid to what is suggested, the other fellow will get the trade. That's all there is to it!

How to Get It

Read carefully the advertisements and as much of the text as is applicable to your needs of all the articles appearing on the pages of the American Gas Journal during the year—every year—every week—and every time you see something that will be helpful—there will be a lot of it—grab it and put it into service.

You will find many suggestions on how to advertise in your daily paper and please be assured right now that advertising is an absolute necessity.

Why?

Because you may know what you have to offer and what you are going to do, but the trade does not, and you tell the greatest number all of this every time you advertise, if your advertisements are worded with the few but convincing words.

And—By the Way

Have you watched and listened to your sales clerks? Are their methods what you desire? If not, hold a class meeting and drill them, and tell them to watch and listen to you while you are making a sale. This can be done without putting the customer wise. This is the method used by first-class football coaches when they drill their teams for victory. And you know co-operation or team work brings home the bacon.

Vivacity Necessary

When you are asked questions concerning your goods do you answer without hesitation or do you stammer or blurt it out as though you were uncertain? Quick, but true decisions will sway the customer in your favor, but you cannot answer questions properly unless you know your goods. That's a certainty.

Business Conditions

Looking toward 1924 and business, it might be meet to quote Grandma with the little boy on her knee: "My child, life is a good deal what we make it," and then, to quote Judge Gary, the youngest old man in business:

"Do not wait for perfect conditions; conditions are never perfect. The tide of prosperity in the United States cannot easily be restrained. Do not treat transient hindrances as if they were permanent, immovable obstacles which we can neither go around nor go over. There is nothing in sight to cause apprehension for the near future. The outlook is good —1924 should be a better year than 1923. There will be success for those who proceed with good judgment and prudence, extending and progressing carefully within the limits of their resources."

There it is. Proceed within the limits of our resources. The writer can visualize several business men during 1923 who had well paying stores, but they were not satisfied; they wanted three or four stores, and when 1923 was saying good-bye these same men had no business at all.

The Annual Pass

Anyone holding an annual pass may ride to his heart's content over the railroad. Gas appliance dealers may not hold many railroad passes, but they have an annual over the road to success, and that is: You can do it Cheaper, Better and Quicker with Gas, and with such a true and sales-getting slogan 1924 will be a successful year to those who work carefully, diligently and knowingly.

THE A. G. A. WINDOW DISPLAY CLUB

A new activity of the A. G. A. is the Window Display Club to incite interest in planning original window displays. Prizes will be awarded and the best windows will be installed at the 1924 Convention and Exhibition.

While contributions may consist of photographs, sketches or written descriptions of either actual or suggested displays, it is important that club members should forward full detailed floor plans, instructions for installation, description of draperies, properties, window cards, etc., and approximate cost of the display when installed.

Rules Covering Contributions

(1) Every Association member is eligible to enroll without charge.

(2) Prize awards will be made beginning with January, 1924, contributions.

(3) All contributions will apply to the month in which they are received at Association headquarters.

(4) Written descriptions, sketches, drawings or photographs of actual or suggested displays are acceptable.

(5) Contributions will be limited to three (3) in any one month from one member.

(6) Prizes will be distributed immediately after awards.

(7) The Committee on Awards reserves the right to determine all points of value on any contributions submitted.

(8) Contributions which receive a point rating of less than seven (7) points, shall not be considered eligible for prize award.

(9) The Committee on Awards reserves the right to determine what suggestions shall be used for the displays installed at the 1924 Convention and Exhibition.

GAS FROM NON-COKING COAL

When non-coking bituminous material is distilled in a cylindrical Rolle oven, the material is caused to descend along the heated walls in a thin layer by means of superimposed inclined annular slats arranged in the manner of a Venetian blind, while the gases pass through the openings into the interior. In this form, obstructions occurring in the interior of the oven cannot be removed, but the present invention avoids this difficulty by providing rectangular distillation chambers in which the slats extend along the side walls, and slightly spaced from them. The openings between the slats must be kept free of obstruction by means of continuously moving scrapers which move longitudinally along the bars. These distillation chambers are arranged adjacent to one another, with a common heating chamber between them. The air and gas for combustion are supplied to the lower end of a combustion chamber and the combustion gases pass from the top through a horizontal flue arranged above the heating space between a pair of ovens, and thence through downwardly directed nozzles into the heating chambers.. For further details see British Patent No. 206,712.

SELLING GAS TO THE HOUSEWIFE

(Continued from page 2)

how to make airy, delicate angel food cake. To "shut-ins," for whom there is no chance to visit the department, this Home Service through the air has been a boon, as expressed by their hundreds of letters.

One blind man, of necessity the housekeeper while his wife went out to earn the living, wrote a most touching, appreciative letter about the new things he had learned to cook and the cheer which had come to him in his "dungeon of darkness," through the friendly 15-minute daily message.

When the wave length was changed last summer and many of the crystal sets could not get KYW, a wail of protests arose so great in volume and so persistent that the Federal agent in charge declared he believed Home Service was the most popular feature in the air judging from the demand for it. The wave length was changed again.

Home Service in the Branch Stores Is Newest Development

Repeated telephone messages and letters from the woman too busy with her household tasks or with the care of little children to find the time to come into the central Home Service department, have led to the installation of departments in three new Peoples Gas Stores in different parts of the city.

This makes it possible for many busy women to drop in for the lecture demonstration while they are

shopping in the vicinity. That they are making good use of their opportunities is shown by the numbers which attend the lectures—almost equaling the daily attendance in the central Home Service. These departments follow the same program as the downtown lectures, with the addition of a Saturday morning class for children. One Saturday class averages about 125 regular little visitors.

Special Service for Clubs

When a program chairman wants a good "home day" for her club, church organization or parent teachers' group, she calls on Home Service to send one of its staff for a lecture or a lecture demonstration as facilities permit. Or she may arrange to bring her whole club into the Home Service department, where a special demonstration may be given in the morning or where a special block of seats may be reserved for the afternoon demonstration.

Some clubs, thoroughly interested in the subjects offered, have arranged for a series of six home talks. That this service is given without compensation to any organization in Chicago is a subject for pleased comment.

General Program

Women like to have the reputation among their friends and neighbors of baking cakes which melt in the mouth, delicious pies or wonderful bread and rolls. It always means a good crowd on the two afternoons a week when lessons are given in making bread, pies, cake and cookies. Even in summer the demand for baking has led the department to continue one baking lesson a week, using the other day for the canning of seasonable fruits and vegetables. The display of sparkling jellies, perfect fruits and colorful vegetables in the central booth has stimulated hundreds of women to ask for the recipes that they may fill their pantry shelves with home cooked fruits.

Throughout the year one day a week is given to dinner menus. The woman who is looking for new desserts, right combinations of fruits and vegetables, makes it her business to come in on Wednesday.

Since hospitality and entertaining are assets for any home one day a week is given to party menus, where unusual foods are cooked and where an attractively set table is a feature.

The class which has drawn the largest crowd is a certificate class for a series of twelve lessons, including everything from soup to cheese and wafers. Members are enrolled, cards issued and punched, and to all showing an attendance of nine out of twelve lessons a certificate is issued. More than 300 women attend this general cooking course.

Results

About 400 women each week take advantage of the telephone service for asking questions and requesting recipes, and many letters are sent out giving special help on different problems.

While it is impossible to tell the exact number of women who receive our daily food talks over the radio, we believe the figure would be startling if it were known. This figure, combined with the large attendance at our lecture demonstrations and the other contacts previously described, is indicative that Home Service is influencing thousands of women to cook more food and better food with gas.

The friendly and personal spirit of the entire service, together with the good results which are produced even by beginners with the accurate recipes, goes far to create good will among consumers and a feeling that in paying for their gas full value is received.

The Ideals of Service and Loyalty

The work of the Pacific Gas and Electric Co. along these lines

Charles W. Geiger

SERVICE is the watchword of the present day among all the modern, up-to-date utilities which may be defined as economic organizations for supplying the essential needs of expanding communities.

It was not always so. This new conception of the public service corporation has come about only within the last few years, but it implies a complete change in the psychology of both the public and the corporation. It implies not only an obligation on the part of the company supplying a public need to give proper value and in a way that is satisfactory to the customer, but also it implies on the part of the people served an essential obligation to give to the corporation those things to which it is entitled—namely, good will and reasonable remuneration for the services performed, without which it cannot exist or expand to meet increased demands.

The "Pacific Service Employees' Association"

In no one thing is the administration of the Pacific Gas & Electric Co. more concerned than in the concrete realization of this new ideal of service in the business world. The company's president, W. E. Creed, is taking a keen and personal interest in this ideal of service among all the thousands of employees of this great utility, and is personally an active member of the organization of the company's workers, known as the "Pacific Service Employees' Association."

Association Founded Four Years Ago

This association was inaugurated four years ago, in line with the policy laid down by Vice-President and General Manager John A. Britton, who, ever since his assumption of office in 1905, had done everything in his power to create among the company's employees the spirit of "service," so much so that the general title of the Pacific Gas and Electric Company began to be known as "Pacific Service."

The new administration of the Pacific Gas and Electric Company not only looks with favor on the employees' association, but has also undertaken to contribute to its funds in order to promote its various activities. Recognizing that the success of a corporation depends ultimately largely on its employees, the management, with W. E. Creed at its head, has determined to make the organization the most successful of its kind in the country in every possible way.

Association Possesses Sectional Clubs

The Pacific Gas and Electric Company covers a very wide territory and includes many departments, such as gas, electricity, water and steam. The entire service is divided into twelve divisions, and a sectional service association now exists in each territorial division of the company.

As, of course, they are separated by many miles, it would be impossible for all these associations to meet in one place, so it has been arranged in the constitution and by-laws that each service club shall elect delegates to represent it in the councils of the parent body in San Francisco. Under this arrangement the various chairmen of the divisional sections become ex officio members of the executive committee of the parent body, and sit in its councils and take part in its deliberations.

Employees Are Enthusiastic in Their Support

So enthusiastic has been the response of the employees to the plans of their leaders that already there is an active membership approaching 3,000 in the various divisions. They seem to have fully endorsed the fundamental aims and ideals of the association, which may be said to be three in number.

Ideals of the Association

The first of these is the social idea of acquainting the members with one another and bringing them together in a new spirit of harmony and co-operation.

The second idea is the benevolent one of making it worth while for an employee of the company to belong to the Service Association. For instance, there are death benefits and aid and advice given to members on all occasions required.

The third idea behind the association is educational and consists in endeavoring to enlighten the employees on the inner nature of their work, to teach them the real relationship between their jobs and the public welfare, so that the workers will come to catch the new meanings of industry, that all work is in a way welfare work for the benefit of the community.

Making the Employee Interested in His Work

The aim here is to make the employee interested in his work as a man, to induce him to take a just pride in what he is doing, so that he will perform his duties in such a way that it will reflect credit upon himself and the company as well. In realizing this idea the Pacific Gas and Electric Company is arranging for lectures on subjects of proper character to instruct their employees on the real nature of gas and electricity business and its intimate connection with community prosperity.

In striving to teach their employees the economic meaning of modern utilities, it is realized that many of the workers will grow bigger in every way, and some will be induced to study and master their occupations, so as to be in line for future promotion to more responsible positions with higher compensation.

How About New Homes?

What are you doing to get home builders and contractors to build in all gas kitchens, home laundries, garage heaters and space heaters

By William H. Matlack

With homes being built in goodly number, in every gas town and city in this United States, it seems that a little more effort (advertising and personal) might very well be expended to have gas provided for in every home.

There can be no doubt that the proper time to secure the major amount of gas outlets in the home is at the time it is being built, or, rather, at the time it is being planned and constructed. The reasons for this are that, in the first place, when a man decided to build a house for speculative purposes or for a home, he is more receptive to the suggestions that make the home more convenient and more livable. Too, when it comes to the cost of installation, the argument may always be presented that the cost will be much lower at the time of construction than if the work is delayed until floors are laid and plastering done.

The man who is building a home may well be approached with the suggestion that proper piping for heater outlets, for automatic water heater, washing machine, ironer, clothes dryer, as well as an all-gas kitchen, make the house a home and add materially, not only to his comfort, but enhance its value to him as an investment and make it more salable, should he, at any future time, desire to dispose of the property.

The contractor or the real estate man who is building to sell should be easily convinced that gas outlets and appliances are just as much a part of the house as outside hose connections, hot and cold water in the laundry and furnace coils.

It Is the Gas Man's Job

The gas man who will give the subject due thought will readily see that it is his job to educate the home builder, the architect, the contractor and the plumber to the more extensive use of gas. There is a surprising response secured from fellow creatures through the power of mere suggestion. If we are never made to think of certain things, we surely will never have a desire for those things. It is a gas man's mission to create the desire in his fellow creatures. Once you create a demand the rest will take care of itself. Some gas men say that they have had no success in working with some of these agencies. This may have been true, but that was probably a number of years back, in the dark days before certain craftsmen had come "out of their trance," before the time when half the kitchen was built-in, before breakfast nooks, winter boxes and furnace coils were considered a vital part of every house.

People Looking for Modern Conveniences

These added conveniences did not come of their own accord. Some one found that they made houses more salable and homes more convenient, and so the ideas spread here, there and everywhere. The gas man today has the opportunity to have his service built into the home as he has never had before. Folks just will not live in a house that has not modern conveniences. This means a house which has a gas water heater and range—these being the two appliances which have been continuously advertised and sold.

Take Up All Gas Appliances

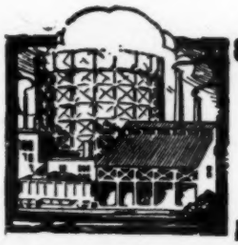
But what about the many other gas appliances which can be utilized in the making of this home? Tell the builder about them, introduce him to their merits and educate him to their essential need in the home. We are striving to bring our gas consumption per meter up to the point where it belongs and to accomplish this result we must see to it that more gas outlets are built into the home. It is of paramount importance that we see to it that new houses are properly piped during the process of construction; that the kitchen is an all-gas kitchen; and that the laundry is equipped with a water heater, washing machine and ironer and that one or more space heaters are a part of the equipment. Let's have them built in; then we will discover other uses for gas service.

HATS ARE MADE WITH THE AID OF GAS

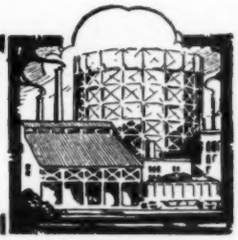
Manufactured gas plays an important part in the making of women's hats, and with the increase in the number of styles demanded with the changing seasons, the hat industry is becoming a large consumer of gas to heat boilers, irons, hatters' stoves and other appliances.

Hundreds of styles are designed at the beginning of each season, and from these the hat manufacturers select the models they prefer. The chosen models are then sent to the moulder, who casts the dies needed to make up the models in large numbers. These dies are of aluminum composition, and gas furnaces are used to melt the metal for the moulds.

When the dies are made, the straw or felt of the hat-to-be is laid upon the lower half of the die and the upper half, heated by a small gas coil, is brought down upon it. The heat and pressure shape the fabric to the form desired.



NEWS OF THE GAS INDUSTRY



Syracuse University Offers Short Course for Meter Men

The Extension Division of Syracuse University will give a special short course for electric meter men from January 21 to 26, inclusive. The success of the first meter men's course, held during the present year, brought requests for its repetition, and the new course will be conducted along the same lines.

The new meter men's course will be open to men employed in the meter departments of public service corporations supplying electrical energy, and will include lectures, discussions and actual meter laboratory practice, the last made possible by the co-operation of the Syracuse Lighting Co., whose laboratory and testing equipment will be available to the members.

Professor R. D. Whitney, of the electrical engineering department of Syracuse University, will have charge of instruction in the fundamental theory of electricity and magnetism; Assistant Professor Lockwood N. Street, of the experimental engineering department, will lecture on the application of electricity to metering; Claude L. Casler, meter engineer and head of the electric meter department of the Syracuse Lighting Co., will have chagre of the laboratory work.

Dividend Raised by Peoples Gas Light & Coke Co.

Chicago, Ill.—Directors of the Peoples Gas Light & Coke Co. declared a quarterly dividend of 1¾ per cent, placing the stock on a 7 per cent annual basis, as compared with 6 per cent paid previously.

A statement given out after the meeting said it was intended to erect a new gas plant in the southeastern section of Chicago, on a site to be determined by engineering necessities.

Samuel Insull, president of the company, made the following statement:

"The increase in dividend rate is in accordance with the fixed policy of sharing the benefits of increased efficiencies and economies of the company between stockholders and customers. A short time ago customers were given a decrease in rates. Now the owners of the property are being rewarded.

"The excellent present condition of the company and the record it is making, both for stockholders and customers, is due in no small part to the fine company organization which has brought the company's physical properties and company loyalty and efficiency up to a high standard."

Price of Gas for Boston Is Reduced Five Cents

Boston, Mass.—Price of gas for Boston is again reduced 5 cents, making the charge $1.20 per 1,000 feet after February 1. This means an annual saving to consumers of approimately $425,000.

Announcement of the reduction was made by Mayor Curley, who gave the press the letter received by him from D. D. Barnum, president of the Boston Consolidated Gas Co. The Mayor admitted that he had been in negotiation with the gas company for two months and was much pleased with the reduction which the directors had voted, which was all that he could hope to obtain at this time.

The letter of President Barnum to the Mayor follows:

"Dear Sir: L received your letter of December 20, in which you request the Boston Consolidated Gas Company to reduce the price of gas to consumers, and I desire to inform you that the directors have voted to reduce the price 5 cents per thousand, effective on bills rendered on and after February 1, 1924."

Cash Prizes Awarded for Humphrey Radiantfire Window Displays

MacManus, Inc., of Detroit, have mailed checks covering $500 in prizes for window displays featuring the Humphrey Radiantfire. Gas companies and dealers throughout the country were invited to enter the competition and several hundred photographic entries were received.

Much originality was displayed by the various contestants and it was by no means easy to select the ten best displays. After careful consideration by a committee, however, the following prize winners were selected:

First prize, $200—The Brecher Co., 433 W. Jefferson street, Louisville, Ky.

Second prize, $100—Binghamton Gas Works, Binghamton, N. Y.

Third prize, $75—The Elmira Water, Light & Railway Co., Elmira, N. Y.

Fourth prize, $50—The Pawtucket Gas & Electric Co., Pawtucket, R. I.

Fifth prize, $25—Citizens Gas & Electric Co., Waterloo, Iowa.

Five equal prizes of $10 each were awarded to Jardine Plumbing Co., Chillicothe, Ohio; The Wayne, 123 E. Fifth street, Dayton, Ohio; the Central Hudson Gas & Electric Co., 129 Broadway, Newburg, N. Y.; Public Service Gas Co., Newark, N. J.; the Queensboro Gas & Electric Co., Lynbrook, L. I., N. Y.

Gas Bond Issue Approved

Indianapolis, Ind.—Petition of the Citizens Gas Co. for permission to issue and sell $218,000 worth of first and refunding mortgage 5 per cent bonds was approved by the Public Service Commission. The sum was asked to reimburse the treasury for betterments and extensions previous to July 1, 1921.

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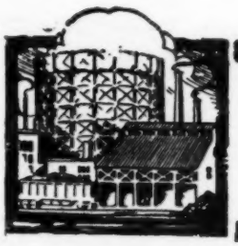
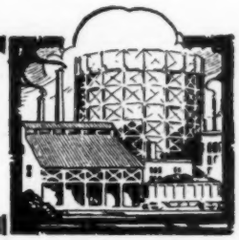
Manufactured gas plays an important part in the making of women's hats, and with the increase in the number of styles demanded with the changing seasons, the hat industry is becoming a large consumer of gas to heat boilers, irons, hatters' stoves and other appliances.

Hundreds of styles are designed at the beginning of each season, and from these the hat manufacturers select the models they prefer. The chosen models are then sent to the moulder, who casts the dies needed to make up the models in large numbers. These dies are of aluminum composition, and gas furnaces are used to melt the metal for the moulds.

When the dies are made, the straw or felt of the hat-to-be is laid upon the lower half of the die and the upper half, heated by a small gas coil, is brought down upon it. The heat and pressure shape the fabric to the form desired.



NEWS OF THE GAS INDUSTRY



Syracuse University Offers Short Course for Meter Men

The Extension Division of Syracuse University will give a special short course for electric meter men from January 21 to 26, inclusive. The success of the first meter men's course, held during the present year, brought requests for its repetition, and the new course will be conducted along the same lines.

The new meter men's course will be open to men employed in the meter departments of public service corporations supplying electrical energy, and will include lectures, discussions and actual meter laboratory practice, the last made possible by the co-operation of the Syracuse Lighting Co., whose laboratory and testing equipment will be available to the members.

Professor R. D. Whitney, of the electrical engineering department of Syracuse University, will have charge of instruction in the fundamental theory of electricity and magnetism; Assistant Professor Lockwood N. Street, of the experimental engineering department, will lecture on the application of electricity to metering; Claude L. Casler, meter engineer and head of the electric meter department of the Syracuse Lighting Co., will have chagre of the laboratory work.

Dividend Raised by Peoples Gas Light & Coke Co.

Chicago, Ill.—Directors of the Peoples Gas Light & Coke Co. declared a quarterly dividend of 1¼ per cent, placing the stock on a 7 per cent annual basis, as compared with 6 per cent paid previously.

A statement given out after the meeting said it was intended to erect a new gas plant in the southeastern section of Chicago, on a site to be determined by engineering necessities.

Samuel Insull, president of the company, made the following statement:

"The increase in dividend rate is in accordance with the fixed policy of sharing the benefits of increased efficiencies and economies of the company between stockholders and customers. A short time ago customers were given a decrease in rates. Now the owners of the property are being rewarded.

"The excellent present condition of the company and the record it is making, both for stockholders and customers, is due in no small part to the fine company organization which has brought the company's physical properties and company loyalty and efficiency up to a high standard."

Price of Gas for Boston Is Reduced Five Cents

Boston, Mass.—Price of gas for Boston is again reduced 5 cents, making the charge $1.20 per 1,000 feet after February 1. This means an annual saving to consumers of approimately $425,000.

Announcement of the reduction was made by Mayor Curley, who gave the press the letter received by him from D. D. Barnum, president of the Boston Consolidated Gas Co. The Mayor admitted that he had been in negotiation with the gas company for two months and was much pleased with the reduction which the directors had voted, which was all that he could hope to obtain at this time.

The letter of President Barnum to the Mayor follows:

"Dear Sir: L received your letter of December 20, in which you request the Boston Consolidated Gas Company to reduce the price of gas to consumers, and I desire to inform you that the directors have voted to reduce the price 5 cents per thousand, effective on bills rendered on and after February 1, 1924."

Cash Prizes Awarded for Humphrey Radiantfire Window Displays

MacManus, Inc., of Detroit, have mailed checks covering $500 in prizes for window displays featuring the Humphrey Radiantfire. Gas companies and dealers throughout the country were invited to enter the competition and several hundred photographic entries were received.

Much originality was displayed by the various contestants and it was by no means easy to select the ten best displays. After careful consideration by a committee, however, the following prize winners were selected:

First prize, $200—The Brecher Co., 433 W. Jefferson street, Louisville, Ky.

Second prize, $100—Binghamton Gas Works, Binghamton, N. Y.

Third prize, $75—The Elmira Water, Light & Railway Co., Elmira, N. Y.

Fourth prize, $50—The Pawtucket Gas & Electric Co., Pawtucket, R. I.

Fifth prize, $25—Citizens Gas & Electric Co., Waterloo, Iowa.

Five equal prizes of $10 each were awarded to Jardine Plumbing Co., Chillicothe, Ohio; The Wayne, 123 E. Fifth street, Dayton, Ohio; the Central Hudson Gas & Electric Co., 129 Broadway, Newburg, N. Y.; Public Service Gas Co., Newark, N. J.; the Queensboro Gas & Electric Co., Lynbrook, L. I., N. Y.

Gas Bond Issue Approved

Indianapolis, Ind.—Petition of the Citizens Gas Co. for permission to issue and sell $218,000 worth of first and refunding mortgage 5 per cent bonds was approved by the Public Service Commission. The sum was asked to reimburse the treasury for betterments and extensions previous to July 1, 1921.

Death Deprives Baltimore Gas & Electric Co. of Chief Engineer George Beadenkopf

George Beadenkopf, chief engineer, gas operations, Consolidated Gas, Electric Light & Power Co., of Baltimore, Md., died suddenly on Christmas night. Death resulted from a stroke of apoplexy.

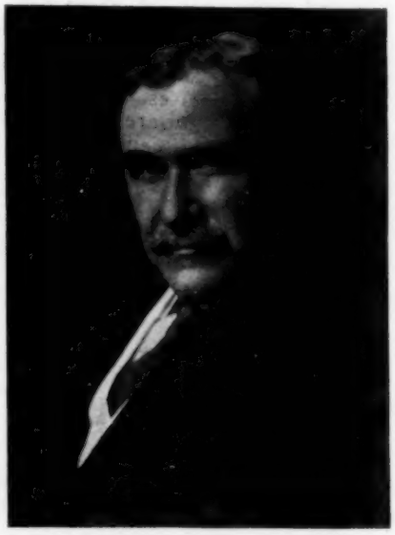
Following a family dinner at the home of his daughter, Mrs. Walter E. Atkinson, of Glyndon, Md., Mr. Beadenkopf had called on an old friend at Glyndon, where for many years he had a summer home. The friend is blind and Mr. Beadenkopf described to him in his happy way some of his experiences during a recent tour of South America. In apparent health and in the best of spirits, he left for his daughter's home, where he died suddenly. It was typical of Mr. Beadenkopf that his last act was to bring to the blind, with his fine gift of narration, descriptions of scenes that are strange to most of us.

No man in the gas and electric organization was better known, no man was better loved than Mr. Beadenkopf. He had the affection and esteem of his associates in the company and of the community at large to a remarkable degree. He lived a life of usefulness and inspiration. He was genuine. He was wholesome. He lived happily himsell and he made others happy. As husband, father, friend, citizen and as an engineer he met his obligations and kept the faith.

Mr. Beadenkopf had been with the company 45 years; nearly half a century devoted to the manufacture, distribution and utilization of gas. He was a Baltimore product. Born in that city in 1857, he entered the engineering department of the Consumers' Mutual Gas Light Co. in 1878 in a minor capacity. Through application, industry and imagination, he rose by successive steps to become chief engineer of gas operations of the company.

Mr. Beadenkopf first worked under the direction of the late Francis H. Hambleton, who was engineer of the Consumers' Mutual Gas Light Co. from 1877 to 1880, and engineer of the Consolidated Gas Co. from 1880 to 1902, and consulting engineer from 1902 to 1910.

Mr. Beadenkopf became assistant engineer, Consolidated Gas Co., in 1883, continuing in that capacity until 1902. From then until his death he had been engineer and chief engineer of the Consolidated Gas, Electric Light & Power Co.



George Beadenkopf

Mr. Beadenkopf's life and work are interwoven with every phase of the planning, construction and operation of Baltimore's gas system. He saw the competing companies come and go. He participated in the centralization of the manufacturing plants. With Mr. Alten S. Miller, who was vice-president and general manager of the Consolidated Co. from 1902 to 1909, he was responsible for the building of the modern gas plant at Spring Gardens. The present plants and the distribution system are the work of Mr. Beadenkopf and the engineers who had the rare privilege of working with him and benefiting by his comprehensive knowledge, his wise judgment, which grew out of his wide experience, and his thoroughness.

For the pages of the Gas and Electric News Mr. Beadenkopf contributed a large number of articles devoted principally to the development of the gas industry in this city. They are not only a history of the Baltimore Company, they are a history of the industry. In them is to be found practically no reference to the work of George Beadenkopf, yet no one could read these articles without knowing that often the works described, as well as the graphic sentences with which they were set forth, were both children of the same brain.—Extracts from supplement to the January issue of Gas and Electric News.

Sprague Meter Gives Turkey Dinner to Staff

The Sprague Meter Co., of Bridgeport, Conn., entertained the members of their executive and office force (numbering twenty-five) at a turkey dinner at the Stratfield Hotel, December 24. One of the amusing features following the dinner was the presentation of a little playlet implicating Mr. Hutchinson, vice-president, and general manager of the company, in the stealing of a No. 10 meter. The jury, consisting of the young ladies in the office, brought in a verdict of "guilty," with a plea for as much leniency as possible. As sentence was being pronounced additional evidence was submitted, his case was reopened, and sentence was reduced to ten years oiling diaphragms.

Arlington Gas Light Company to Install New Equipment

The Arlington Gas Light Company of Arlington, Mass., has placed an order with the Gas Machinery Company of Cleveland, O., for a new eight-foot six-inch diameter water gas generator and auxiliary equipment, to be installed on its old seven-foot six-inch water gas set.

The new generator and auxiliary equipment will greatly improve the capacity as well as the efficiency of the old apparatus and provide the gas company with the necessary additional gas to take care of their ever-increasing business.

Governor Smith's Power Development Proposal Analyzed

Albany, N. Y.—While the proposal of Governor Smith contained in his message to the Legislature to develop State-owned water power through a holding corporation to be known as the New York State Power Authority, with administrative machinery similar to the New York Port Authority, and to issue bonds, the proceeds thereof to become its working capital fund and be issued without necessity of referendum approval by the people, as in the case of a State bond issue, offers a unique solution to a problem that has puzzled politicians for a score of years, a close analysis of the purposes and objects of the power project compared with conditions surrounding port development disclose the fact that the practical application of the Smith plan is not so simple as would at first glance appear.

Two kinds of public undertaking during recent years have been authorized by the Legislature of New York State and custody placed in the keeping of a quasi-public board which was given power, among other things, to issue bonds for contemplated improvements and to pledge the improvement as security to the bond holders.

One of such undertakings is the River Regulatory District Commissions, endowed with the authority to regulate the flow of streams and with a co-ordinate authority to develop as a part of a general plan any water power created or acquired incidental to the completion of the project.

After the working plan for river regulation had been successfully launched and had survived the jeopardy of court decisions, the Port Authority of New York was created along much the same fundamental plan of organization.

Two well defined factions have long hindered power development of any sort in New York State, the one faction insisting on promotion by private capital, the other as a project of the State itself. While the proponents of State development have been in the majority, they lacked organization and method and have never been able to put forward a workable plan of financing the venture. Political observers stood aghast at asking the people to approve a half billion dollar bond issue, the amount ultimataely necessary for any comprehensive plan of State-wide development. The Smith proposal would side-step this issue entirely by empowering the State Power Authority to raise the money required itself.

In the case of river regulation the value of the improvement is to be assessed against the property benefited and bonds are to be issued and paid for out of receipts accruing from use of the development and such authorized assessment against taxable property as may be necessary during the period of years looking toward the maturity of the bonds. These bonds are secured by the people benefited and residing in the territory comprising the river regulatory district, and as a part of the plan of development their consent is first secured to the project.

Under the proposed Smith plan of a State Power Authority, all the security for payment the bonds would carry would be the value of the water power and incidental rights the State would turn over to such authority, plus the value of the developing improvements after foreclosure proceedings.

The Smith plan calls for complete State development with sale of electricity at cost to municipalities with the subject of transmission of current to the retail market left largely to imagination, but calls for the repeal of all of the statutes permitting private development of State owned power.

A concrete example: The Power Authority sells two hundred million dollars in bonds for development of St. Lawrence River power. The project fails of success; default is made in payment of interest and principal of bonds; foreclosure proceedings are instituted.

Who will buy the property?

Who can purchase it?

Who can operate it after it is purchased?

The State would prohibit private capital from exercising such a function, and at the same time deny responsibility for bonds issued through the medium of a body corporate to which its Legislature has delegated administrative powers and given a valuable franchise.

In other words, who would buy the bonds, even if made tax-exempt, in the first instance?

Would the courts permit savings banks and municipalities to invest their money in them?

Another very important question necessary of court interpretation will be whether such State Power Authority would have the right to issue any such bonds under any circumstances.

In the case of river regulation, and it should be remembered that while two river regulatory commissions have been in existence for some time and one of them has reached a point where it soon will issue its bonds, neither of them has actually completed operations and established itself as a saving corporation, the courts held that the State had the right to delegate and the river regulatory commission the right to exercise prerogatives in controlling the flow of streams as a part of the State policing power as a health measure, which is one of the strongest powers vested in the State government.

In the matter of the recently contemplated Oswegatchie River regulating district, which is to be primarily a power development undertaking with river regulation dragged in by main strength, the courts have yet to decide if it may legally function.

So, first and all, the courts would be called upon to determine the rightfulness of a bond issue by the Power Authority, and the Power Authority in turn to convince the purchaser of the stability of his investment.

It would appear, therefore, that the most that can be expected of the new proposal, if it be adopted by the Legislature, is the appointment of another power commission and the expenditure by it of money and time in working out a comprehensive and ultimate plan of development.

Pennsylvania Engineering Works Inaugurates Gas Holder Division

The Pennsylvania Engineering Works, of New Castle, Penn., has entered the gas field with the establishment of a gas construction division. This company was organized in 1899 and since that time has built blast furnaces and equipment for steel plants throughout the country. During this period the business has expanded from a small plant at the beginning to its present plant, which covers an area of ten acres.

The company has secured the services of two well-known men in gas holder work, Mr. George H. Cressler and William S. Guitteau. Both of these gentlemen, who are well known to the gas industry, will equally share in the management of the gas construction division of this company. It has also secured the services of Mr. C. E. Neudorfer, former general superintendent of Peter Conley Mfg. Co., who will be in charge of production.

In preparation for gas holder fabrication, the Pennsylvania Engineering Works has purchased specially designed machinery and equipment, for gas holder fabrication and erection, so arranged as to facilitate the speeding up of production and field erection.

In addition to the gentlemen named, it is announced that the gas holder division will be backed by the engineering staff of the company, which, together with the modern facilities of the plant, will enable them to handle efficiently all work of this nature.

Gas Employee Accidentally Killed

H. A. Lask, 28 years of age, assistant orifice meter engineer of the Southern Counties Gas Co. of California, was accidentally killed recently in attempting to change a meter plate in a gas-filled vault near the city of Whittier. Funeral services for the young man were held in the city of Pasadena, Lask having been a native of that place.

Lask had been an employee of the Southern Counties Gas Co. for four years and ranked high in the estimation of his superiors. His recent work in installing the meter set-up at Santa Barbara, together with other similar accomplishments, won him the esteem of the engineering department of the company.

Lask was educated in the public schools of Pasadena and was graduated from the Throop Polytechnic Institute, now the California Institute of Technology. Four years later he was graduated from Stanford University and then entered the Missouri School of Mines. Having chosen the gas business as his profession, he entered the engineering department of the Empire Gas & Fuel Co., at Bartlesville, Oklahoma. Returning to Los Angeles in 1920, he entered the employ of the Southern Counties Gas Co., where he remained until his death.

He was a clean-cut young man of high ideals and a deep student of gas engineering problems. In addition to his broad engineering education, he had a practical training which made him valuable to his employer. He was a member of the Pacific Coast Gas Association and was affiliated with several nationally known engineering societies. Besides a father, Frederick Lask, with whom he lived at 506 Summit avenue, Pasadena, Lask is survived by two sisters, Lillian and Helen.

Annual Christmas Party Held at Millville, N. J.

Millville, N. J.—Employees of the Cumberland County Gas Co., Millville Water and Electric Companies, numbering 175, assembled in the large garage in the rear of the home of S. J. Franklin, general manager of the utilities, on North Second street, Christmas eve, in their annual Christmas party, and the affair proved to be a very enjoyable one, indeed.

The decorations of holly and cedar were attractively arranged and gave the place a real Christmas atmosphere. Colored electric bulbs added to the beauty of the interior.

A delectable turkey dinner was served, the employees being seated at four long tables. An orchestra provided music throughout the evening.

Mr. and Mrs. Ted Lenore, Vineland's talented entertainers, were present and their songs were enjoyed.

Raymond Lee was master of ceremonies and he called on several of those seated about the table and they responded with brief remarks.

On the platform at one end of the room stood the Christmas tree, sparkling with decorations and illuminations. B. Frank Buck was Santa Claus and he distributed the gifts.

At the conclusion of the evening's enjoyment each employee was presented with a turkey, the annual gift of the utilities concern to the employees.

The committee in charge of the affair was Alfred Brandriff, Jr., Raymond Lee, Charles De Tori, George Hepner and Ralph Lee.

Changes in U. S. C. I. P. & Foundry Co. Personnel

The United States Cast Iron Pipe & Foundry Co. announce the following changes in their force personnel, effective January 1, 1924: Mr. H. A. Hoffer is appointed Eastern sales manager, with headquarters at the Morris building, 1421 Chestnut street, Philadelphia, Pa. Mr. G. T. Overholt is appointed acting New York sales agent, with headquarters at 71 Broadway, New York City. Mr. Thomas Simons is appointed Kansas City sales agent, with headquarters at Interstate building, Kansas City, Mo.

Edward C. Drake Appointed Sales Engineer

The Bryant Heater and Manufacturing Company announce the appointment of Mr. Edward C. Drake as sales engineer. Mr. Drake is a graduate of Case School of Applied Science, Cleveland, where he took the course in mechanical engineering. His previous experience in the drafting room and the factory has given him an opportunity to become intimately acquainted with the company's product.

To Install New Equipment

The Harrisburg Gas Co., Harrisburg, Pa., plans erection here of a new gas generating and distributing plant, with steam power house, gas holder, etc., estimated to cost a million dollars. About $500,000 will be spent on completing the initial unit during 1924. L. S. Williams is general manager of the company.

P. S. Commission Adopts Uniform System of Accounts

Albany, N. Y.—The Public Service Commission on December 19, 1923, adopted the uniform system of accounts for gas and electric corporations, subject to its supervision as recommended by the National Association of Railway and Utilities Commissioners at their meeting held at Detroit in November, 1922, with certain modifications necessary to adapt such system to New York State practice.

The Commission has been considering the adoption of the system for over a year and on October 31st a public hearing was held at Albany, attended by officials of leading gas and electric corporations in the State. The new system of accounts will apply to all corporations under jurisdiction of the commission with operating revenues of $10,000 or more.

While the Commission is limited by law to a six months' notice in changing the system of accounts of a public service corporation, and the order of the Commission requires compliance with its terms by July 1, 1924, it is stated at the office of the Commission that nearly all of the corporations affected will install the new system of accounts on January 1st next.

The system has been adopted in Illinois, Wisconsin, Utah, Pennsylvania, Michigan and other states and it is the aim of the National Association of Railway and Utilities Commissioners to have it adopted by all states.

The Public Service Commission has issued a pamphlet of over 100 printed pages accompanying the order, setting forth in detail the various ramifications of the new system.

The first three pages of the book are devoted to general instructions, definitions, etc. Corporations affected are divided into four classes, as follows:

Class A. Corporations having average annual operating revenues exceeding $500,000.

Class B. Corporations having average annual operating revenues exceeding $50,000, but not over $500,000.

Class C. Corporations having average annual operating revenues exceeding $10,000, but not over $50,000.

Class D. Corporations having average annual operating revenues of $10,000 or less.

All corporations for whom this uniform system of accounts is prescribed will keep balance sheet, fixed capital, income, profit and loss, and operating revenue accounts as provided in this system of accounts, so far as applicable to their business.

Each subject has been fully and concisely treated in detail by indexed and numbered sections. A general preface precedes the subject of "Balance Sheet Accounts," consisting of general instructions and definitions, and listing under this heading: Balance sheet accounts defined, form of balance sheet, current assets, investments, funds, suspense accounts, adjustment accounts, current liabilities, accrued liabilities, reserves, premium on capital stock, discount, expense and premium on long term debt, contingent assets and liabilities. The standard form of balance sheet is then taken up and described in detail.

Under the heading, "Assets and other debits," fixed capital, current assets, miscellaneous assets, suspense and adjustment accounts are treated in a score of sections, while under the heading of "Liabilities and other credits," capital stock, current liabilities, accrued liabilities and reserves are described.

The next subject considered is Fixed Capital Accounts. The preface to Fixed Capital Accounts defines fixed capital, tangible and intangible capital and overhead costs, prescribes fixed capital to be entered and retained on books at cost, first entries must enable identification, application of classification, salvage and insurance, withdrawals and retirements, work order system required, improvements on leased property, salvage from equipment, tools, etc., and sub-accounts for departmental capital.

Fixed capital accounts are then divided into "Intangible Fixed Capital," treated by three sections, and "Tangible Fixed Capital," which in turn is divided into three general parts, consisting of:

Specific accounts, consisting of land, structures, generating plant, steam, generating plant-hydro-electric, generating plant, gas, transmission and distribution and consumers' installation.

General equipment, consisting of office, shop, store equipment, etc., and miscellaneous tangible capital, and

Overhead costs and other undistributed items.

A standard form of "Income Accounts" is shown. Under the heading of "General Instruction and Definitions," under income accounts, are sections relating to income accounts defined, form of income account, revenues, counts, are sections relating to income accounts, are sections relating to income accounts defined, form of income account, revenues, operating revenues, non-operating revenues, revenue deductions, expenses, taxes, uncollectable bills, income, rents and delayd income items. Six pages are devoted to the text pertaining to income accounts.

A standard form of keeping profit and loss accounts as well as operating revenue accounts is also described in detail, with sub-heads for every possible contingency.

Generally speaking, the system of accounts for electric and gas corporations is the same except for operating expense accounts in which the unit phraseology is different. Hence a separate pamphlet has been issued by the Commission for both the electric and gas corporations.

The publication will form a ready guide which will be of material assistance to the accounting departments of the various electric and gas corporations in putting the new system of accounting into effect.

DON HOLBROOK.

Gas Schedule Approved by Public Service Commission

Albany, N. Y.—Penn Yan Gas Light Co. Gas service supplied in village of Penn Yan, N. Y. Schedule filed became effective January 1, 1924, provides new rules and regulations governing service. No change in block rates for gas consumed, but prompt payment discount is changed from 1c per 100 C. F. to 1c per 100 C. F. on use of 20,000 C. F. or less and 2c per 100 C. F. on consumption of over 20,000 C. F. per month.

Awards Contract

The Consolidated Gas Company of Long Branch, N. J., has awarded contract to the Gas Machinery Company of Cleveland, O., for new water gas generating equipment.

The installation will include eleven-foot cone top generator and auxiliary equipment, installation of automatic control, explosion check valve, thirty-inch gas connections, etc.

The gas company is also installing a new motor-driven blower to furnish sufficient air of proper pressure to the new eleven-foot equipment.

The commission's order fixed a consumption and demand charge. The city appealed and the commission was sustained both in the State Supreme Court and United States Supreme Court.

Increases Capital

Albany, N. Y.—Certificate has been filed in the office of the Secretary of State at Albany, N. Y., authorizing A. H. Wolff Gas Radiator Co. of New York City to increase its capital by the issuance of 17,000 additional shares non par value. Of these 10,000 shares are to be issued as replacement shares for stock now outstanding and 7,000 shares disposed of subject to approval of the shareholders.

This company was incorporated March 9, 1903, with a capital of $20,000. March 29, 1920, its capital was increased to $20,000 and on January 3, 1923, its capital was again increased to $200,000.

Leo Schafran, 51 Chambers street, New York City, is attorney for the corporation.

New Rates for Oswego, N. Y.

Albany, N. Y.—The Public Service Commission on December 21 authorized the Peoples Gas and Electric Co. of Oswego, N. Y., in territory served by it, to charge for gas after January 1, as follows:

First 300 cubic feet a month, $1.

Next 700 cubic feet a month, 23 cents a hundred.

Next 9,000 cubic feet a month, 21 cents a hundred.

Next 10,000 cubic feet a month, 20 cents a hundred.

All in excess of 20,000 feet, 19 cents a hundred.

Minimum monthly charge per meter, $1.

These rates are to remain in effect for one year thereafter until changed by the Commission.

Present rates charged are:

First 100 cubic feet a month, 69 cents.

Next 9,000 cubic feet a month, 19 cents a hundred.

Next 10,000 cubic feet a month, 18 cents a hundred.

Next 10,000 cubic feet a month, 17 cents a hundred.

In excess of 30,000 cubic feet a month, 16 cents a hundred.

Minimum monthly charge, 50 cents.

Commissioner Van Voorhis, in a memorandum with the order, says the cost of manufacturing gas in Oswego is high in comparison with other companies. "The output of gas of this company," says Commissioner Van Voorhis, "does not appear to be as large as that of other companies serving communities of similar size. Companies reporting to this commission, as a whole, show marked increases in sales of gas from year to year. The commission is of the opinion that more effort should be exerted towards increasing gas sales, thereby increasing the revenues in much larger proportion than costs of increased production and distribution.

"Upon the rate base which we have reached and with a revision of the operating expenses, of revenue deductions in the items of legal expenses and uncollectible bills, the present rates with an estimated normal increase in gas sold do not afford a 7 per cent return by approximately $12,000.

"In conference had with parties no objection was made to this form of rate, either by the company or by the city. This schedule will require users of small quantities of gas to pay a reasonable price for the commodity used. The classification of consumers presented on the hearing shows that the average consumer uses approximately 1,200 feet of gas.

"As to the amount of rates, judging from the experience of the commission in contested rate proceedings, the approval of both parties is not to be expected. It is the belief of the Commission, however, that these rates are just and fair to the public and to the utility. They are not so low that they will not yield a reasonable return upon the value of the company's property, nor so high as to exceed the worth of the service, thereby causing subscribers to discontinue. This company as the possessor of a monopoly is charged with the duty of exercising all skill and judgment in reducing costs and maintaining adequate service which would be required of it to exist and proper in a competitive field. As economies may be effected the rate of return will increase.

"The rates are but estimates for the future and actual experience thereunder will be the best test of whether they are reasonable. After they have been in effect for a proper period parties may confer with the Commission as to results produced by them."

Appointed District Superintendent

Bivens, Col. — Carl Summers, formerly assistant district superintendent to Bivens in the Ventura County district, was made district superintendent, following Bivens' transfer to Long Beach. Summers, the youngest territory representative on the company's system, began his career as an office boy with the Southern Counties Gas Company. Returning from the service in 1919, he was placed in charge of Ventura County property under the careful guidance of Frank H. Bivens. When Bivens was moved to Long Beach, Summers was immediately promoted to district superintendent.